

VX-30/VX-31 INSTRUCTION 13050.1

From: Commanding Officer, Air Test and Evaluation Squadron THREE ZERO
Commanding Officer, Air Test and Evaluation Squadron THREE ONE

Subj: POLICY, PROCEDURES AND RESPONSIBILITIES FOR MODIFICATION AND
CONFIGURATION CONTROL OF AIR VEHICLES, AIR VEHICLE STORES AND AIR
VEHICLE INSTALLED SYSTEMS FOR RESEARCH, DEVELOPMENT, TEST AND
EVALUATION (RDT&E)

Ref: (a) NAVAIRINST 13050.6 [CM Of RDT&E Aircraft]
(b) NAVAIRINST 3960.4B [Test Plan Instruction]
(c) NAVAIRINST 13034.1B [Flight Clearance Policy For Manned Aircraft]
(d) NAVAIRINST 13030.2 [Tailored Applications Of Airworthiness Standards For
Special Purpose Configurations Of Aircraft And Weapons Systems]
(e) NAVAIRINST 13034.2 [Flight Clearance Policy For Unmanned Systems]

Encl: (1) Modification Process Flow Chart reprinted from Reference (a)
(2) Sample Designation Letter
(3) Mod Coordinator Roles and Responsibilities
(4) Mod Reviewer Roles and Responsibilities
(5) Mod Proposal Questionnaire and Data Package Expectations
(6) Platform Coordinator Roles and Responsibilities
(7) Mod Induction Checklist for Hardware Changes
(8) Mod Acceptance Checklist
(9) Modified Weapon/Store/Suspension/Handling Equipment Checklist Development and
Approval Procedure Requirements
(10) Software Reconfiguration Procedures
(11) Placard Form

1. **Purpose:** This instruction establishes squadron policy, responsibilities, definitions and procedures to approve, control, and document the installation, modification and reconfiguration of air vehicles, air vehicle stores/expendables and air vehicle systems operated in support of the RDT&E mission as governed by reference (a).
2. **Cancellation:** The following documents have been cancelled:
 - a. NAWCWPINST 13034.1 [ACCB Instruction]
 - b. NAVTESTWINGPACINST 8000.1 [Preparation of Developmental Weapons/Store Checklists]
 - c. NAVWPNTSTRONPMINST 13050.1 [PM Mod Procedures]
 - d. NAVWPNTSTRONCLINST 13050.1 [CL Mod Procedures]
3. **Scope:** This instruction applies to all air vehicles assigned to, or in the temporary custody of VX-30 or VX-31. This instruction also applies to all systems/stores intended for power-on ground test, taxi test or flight test carried on, or installed within, assigned aircraft. This instruction will serve as the guide for establishing written agreements with private or external agencies in which VX-30 or VX-31 assigned personnel support modification of private or external agency air vehicles, stores or expendables.
4. **Background:** Reference (a) established uniform configuration control tracking requirements for all NAVAIR activities and delegated modification approval authority to individual Commanding

Officers (CO) and Aircraft Reporting Custodians (ARCs). Reference (a) also directed each Squadron to establish specific guidelines governing the specific actions, responsibilities and certification requirements of assigned and supporting personnel involved with the modification of assigned/managed aircraft, stores and installed systems. References (b) through (e) govern NAVAIR's policy regarding the request and approval of flight clearances and test plans. In order to commence flight testing of a modified air vehicle, store or expendable, the sponsoring agency via their test team, Project Officer or Project Engineer shall obtain:

- a. Modification Proposal, Installation and Acceptance Approval from the appropriate Aircraft Reporting Custodian (generally the Assigned Squadron's CO) or Air Vehicle/Store Owner (in the case of private or agencies external to NAVAIR).
- b. Flight Clearance to operate a modified NAVAIR controlled Air Vehicle or Store.
- c. Test Plan Approval from the appropriate Test Coordination Team (TCT) to conduct Ground/Flight Testing of NAVAIR Modified Aircraft, Air Vehicles, Stores or Expendables or conduct testing using NAVAIR assigned Test Personnel.

Enclosure (1) is a graphical depiction of the three processes described above, and is taken directly from reference (a).

5. **Policy:** All activities seeking to modify or reconfigure aircraft, stores and/or expendables carried aboard aircraft assigned to VX-30 or VX-31 shall comply with the procedures set forth by reference (a) and this instruction.

6. **Definitions:**

- a. **Modification Design Coordination Meeting.** Meeting(s) generally chaired by the Mod Coordinator designed to coordinate engineering review requirements, data submission plans and timeline expectations among Mod Review personnel, the sponsoring Project Team and key members as required from Naval Air Systems Command (AIR 4.0P), Maintenance, the Mod Installation Team, Platform Coordinator, and Chief Test Pilot (CTP). The Mod Coordinator shall ensure attendance records and minutes are recorded for each Mod Design Coordination Meeting.
- b. **Modification Induction Coordination Meeting.** Meeting generally chaired by the Mod Induction Approval Authority on moderate to large-scale modifications designed to capture:
 - Mod Progress Timelines,
 - Maintenance Control interface requirements
 - Additional planned aircraft maintenance / special inspection / movement / update operations that will occur on an airframe during a project modification
 - Mod Installation Team procedural adherence expectations
 - Support Equipment planning
 - Aircraft inventory audit plans
 - QA procedures
 - Interim and final QA inspections
 - Mod deviation reporting and acceptance procedures
 - 4790 procedural adherence expectations to include:
 - Tool control
 - FOD prevention
 - Personal Protective Equipment (PPE) employment
 - HAZMAT processing.
 - Ejection Seat Safety

The Quality Assurance Officer (QAO) is responsible for ensuring attendance records and minutes are recorded for each meeting and a copy is provided to the Mod Coordinator for his record purposes.

- c. Modification Installation Team. Personnel assembled to make a physical change to the hardware/software configuration of an aircraft/store. This includes the engineering and installation personnel involved with making the actual change(s).
- d. Modification Proposal Lead. Individual representing the Project Team desiring the modification of an Air Vehicle or Store responsible for coordination of the design team and installation team to serve as the Primary Point of Contact to interface with each Squadron's Mod Coordinator.
- e. Modification Reviewer. Individual designated in writing by the Commanding Officer (or appropriate Competency Department Head in the case of a Flight Clearance Performance Monitor if accepted by the Commanding Officer) assigned the responsibility of reviewing a modification proposal with respect to a specific discipline to ensure an effective design has been proposed, installation instructions are clearly understood, and the risks of reducing service life, envelope or performance capability are clearly communicated to the Mod Approval Authority and the Mod Installation Team.
- f. Mod Quality Assurance Representative (QAR). Individual nominated by the Project Team or Mod Installation Team, recommended by the QAO and designated in writing by the MO to complete all proposed and assigned intermediate and final Quality Assurance (QA) inspections associated with the modification of an aircraft/store.
- g. Project QAR. Individual designated in writing by the Maintenance Officer (MO) to serve as his/her direct representative throughout any modification to ensure process and procedures are executed in compliance with the spirit and intent of the Naval Aviation Maintenance Program (NAMP) as defined in the current OPNAVINST 4790 series.
- h. Platform Coordinator. Naval Aviator or Naval Flight Officer (NFO) designated in writing by the Commanding Officer to serve as the command's primary interface for test aircrew training requirements, modification proposal reviews, and asset prioritization involving his/her assigned Type Model Series (T/M/S) aircraft. For Mod Reviews and asset prioritization the Platform Coordinator may nominate one or more individuals to the CO for designation as the Assistant Platform Coordinator.
- i. Projects Coordinator. Individual designated in writing by the CO to coordinate between Project Teams, Mod Installation Teams, Platform Coordinators, Maintenance Control, Quality Assurance (QA) and the Squadron's Mod Coordinator issues and requirements involving aircraft/store modification, configuration tracking and flight clearance status/applicability for both hardware and software changes to squadron aircraft.
- j. VX-30 or VX-31 Developmental Weapons Checklist Review Board (DWCRB). Personnel designated by the CTP to develop and review weapon and stores checklists for all developmental stores under test at VX-31. The DWCRB will be established with the following members at a minimum:

Chief Test Pilot	Chairman
Platform Coordinator	Member

Squadron Ordnance Officer (Gunner)	Member
Aviation Safety Officer	Member
Ordnance Project Officer	Member
Modification Coordinator	Member

7. **Responsibilities:**

a. **The Commanding Officer (CO) shall:**

- i. Ensure all aircraft and stores assigned to his/her unit in both a temporary or permanent basis, and those stores tested on his/her assigned aircraft are modified in accordance with this instruction and reference (a).
- ii. Designate in writing using enclosure (2) anyone authorized to approve By Direction a modification proposal, induction and/or acceptance.
- iii. Update this instruction as required to ensure compliance with OPNAV and NAVAIR policies governing the modification of aircraft and stores.
- iv. Personally review and approve those modifications which result in:
 - 1) Permanent reduction in an aircraft's operating envelope, e.g., reduced maximum n_z , limited Max airspeed or Mach, reduced service ceiling, etc.
 - 2) Permanent reduction in service life, i.e., loss of expected Fatigue Life Expectancy (FLE).
 - 3) Permanent reduction in an aircraft's performance capability, e.g., loss of catapult capability, arrestment capability, night operations, all-weather operations (e.g., dry aircraft), gunfire capability, etc.

b. **The Chief Test Pilot (CTP) shall:**

- i. Read and fully understand this instruction, including references (a) through (e).
- ii. Serve as the Mod Approval Authority if so designated in writing by the CO/Air Vehicle Owner for those modifications that:
 - 1) Change or remove Original Equipment Manufacturer (OEM) Controls and Displays
 - 2) Change or eliminate Cockpit Lighting, to include Chart/Map Lights
 - 3) Change or eliminate Night Vision Display (NVD) Compatibility
 - 4) Result in a request to carry Non-Jettisonable Stores in excess of 400 lbs
 - 5) Temporarily restrict Operating Envelope, Service Life and/or Performance Capability
- iii. Participate in and chair MOD Design Coordination meetings for complex, long duration aircraft modifications that could result in aircraft changes involving flight safety critical systems when requested to do so by either the CO or Mod Coordinator.

c. **The Technical Director (TD) shall:**

- i. Read and fully understand this instruction and references (a) through (e).
- ii. Serve as the Mod Approval Authority if so designated in writing by the CO/Air Vehicle Owner for those modifications that are not expected to result in a loss or degradation to:
 - 1) The Operating Envelope
 - 2) The Service Life
 - 3) The Performance Capability
 - 4) Night/All-Weather/NVD Operation
- iii. Participate in, and chair as required, MOD Design Coordination meetings when requested to do so by the CO, CTP or Mod Coordinator.
- iv. Review the Mod Coordinator's nominees and designate in writing those personnel accepted to serve as Mod Reviewers from engineering and system safety disciplines using enclosure (5) as a guide. Prior to designation of any individual who is not currently designated as a flight clearance Performance Monitor (PM) the TD shall coordinate with the appropriate Division Head to ensure an individual's training, experience and demonstrated capabilities are commensurate with the type of tasking expected with Mod Proposal Review and Recommendation. The TD should construct a Task Assignment Agreement (TAA) that identifies expectations for scope of reviews, guidelines for when to seek additional counsel, type/model/series of aircraft and/or stores authorized for review and funding/accounting expectations.

d. **The Mod Coordinator shall:**

Execute the roles and responsibilities as defined in enclosure (3).

e. **Each Mod Reviewer shall:**

Execute the roles and responsibilities as defined in enclosure (4).

f. **The Mod Proposal Lead shall:**

- i. Read and fully understand this instruction and reference (a).
- ii. Ensure their Mod Proposal specifically answers the questions set forth in enclosure (5); ensure that sufficient data exist to substantiate each answer; and ensure that the location of that data is clearly identified.
- iii. Ensure each data package meets minimum data requirements as detailed in reference (a).
- iv. Work with the Mod Coordinator to address any concerns and/or questions raised at any point in the request, approval, induction, installation, or acceptance phases of the process. The Mod Coordinator is responsible for providing training regarding data format expectations, routing tools, or review contact information throughout the request.
- v. Ensure design engineers are available to address and answer questions as required when raised by Government Mod Review personnel.

- vi. Recognize that Mod Approval does not gain flight test authorization. To enter flight test also requires a flight clearance and approved test plan, both of which are separate and distinct authorizations. Mod Approval is simply authorization to change an accepted and approved configuration of an air vehicle or store.
- g. **The Platform Coordinator shall:**
Execute the roles and responsibilities as defined in enclosure (6).
- h. **The Maintenance Officer (MO) shall:**
 - i. Read and fully understand this instruction and references (a) through (e).
 - ii. Nominate personnel to the Commanding Officer (CO) for designation as MOD Induction Approval Authorities.
 - iii. Nominate personnel to the CO for designation as MOD Acceptance Approval Authorities.
 - iv. Nominate personnel to the CO for designation as Projects Coordinator.
 - v. Designate, in writing, those personnel assigned to serve as Quality Assurance Representatives (QARs) (both Project QARs and MOD QARs).
 - vi. Assign maintenance representatives from QA, Maintenance Control and other Work Centers as required to participate in MOD Design or MOD Induction Coordination Meetings.
 - vii. Ensure all personnel involved with the design, installation, QA and acceptance of modifications comply with the Naval Aviation Maintenance Program (NAMP), as defined in the current OPNAVINST 4790 Series, and recommend appropriate action to the CO for those who fail to comply.
 - viii. Provide feedback to the Mod Coordinator of any maintenance concerns immediately after installation.
 - ix. The Maintenance Officer, or his Designated Representative, shall review the modification proposal package for safety requirements applicable to the installation/deinstallation of the modification. This review will include: ammunitions, explosives, electronic radiation concerns to ground personnel, weight and balance, equipment handling procedures, maintenance procedural changes, Support Equipment, and Hazardous Material/Waste requirements. In addition he shall review training requirements associated with the aircraft and maintenance with respect to potential damaging effects of an accident/mishap.
 - x. The Maintenance Officer, or his Designated Representative, shall be the single point of authorization for approval of un-resolved issues concerning all areas of Aircraft Maintenance, Department Personnel, Supply Support, and training ground personnel as related to the modification proposal package.
 - xi. All issues related to safety, which could possibly result in the injury of maintenance personnel and aircrew or damage the aircraft/system, must be identified to the Maintenance Officer.

i. **The Maintenance & Material Control Officer (MMCO) shall:**

- i. Ensure Aircraft are ready for induction on-time, in the agreed upon configuration.
- ii. Evaluate and respond to the MO on all Mod Proposals, and advise of potential support requirements/impacts in areas such as:
 - 1) Support Equipment (SE)
 - 2) Tools
 - 3) HAZMAT
 - 4) Facility Support, etc
- iii. Track mod installation progress.
- iv. Maintain a close liaison with the MOD Installation Team regarding items such as aircraft movement, special inspections, maintenance actions and preservation requirements.
- v. Ensure compliance with Technical Directive Requirements, Weight and Balance Program, Aircraft Logbook, and Discrepancy Book Programs.
- vi. Seek to resolve any safety issues that could result in the injury to maintenance personnel and aircrew or damage to the aircraft. Un-resolved safety issues or un-resolved issues of any kind shall be forwarded to the MO with a detailed brief/explanation of the concern.

j. **The Quality Assurance Officer (QAO) shall:**

- i. Train all new MOD Installation Teams on command expectations for OPNAVINST 4790 Program Compliance to include, but not limited to:
 - 1) Tool Control
 - 2) FOD Prevention
 - 3) HAZMAT Operations and Regulations
 - 4) Personal Protective Equipment (PPE) usage
- ii. Monitor all MOD Installation Teams for compliance with the programs stated above, as well as OPNAVINST 4790 aircraft maintenance and modification expectations.
- iii. Review all MOD Proposals and:
 - 1) Ensure each proposal defines understandable and reasonable QA Inspection requirements and timelines
 - 2) Nominate MOD QARs as required
- iv. Initiate Installation Deviations via Visual Identification System/Maintenance Action Form (VIDS/MAF) upon each discovery of a discrepancy between the MOD Installation directives/blue-prints/design and the actual installation. Ensure the Mod Coordinator is advised of all deviations for referral to the appropriate engineering review.
- v. Complete QA's required portions of each Mod Induction Checklist as defined in enclosure (7) and Mod Acceptance Checklist as defined in enclosure (8).

- vi. Keep the Maintenance Officer advised on Mod progress and OPNAVINST 4790 compliance by the Mod Team.
- vii. Seek to resolve any safety issues that could result in the injury to maintenance personnel and aircrew or damage to the aircraft. Un-resolved safety issues or un-resolved issues of any kind shall be forwarded to the Maintenance Officer with a detailed brief/explanation of the concern.
- viii. Ensure final QA inspection of MOD acceptance is conducted with all deviations reported.

k. **The Ordnance Officer (Gunner) shall:**

- i. Review all MOD Proposals involving changes to:
 - 1) Aircraft Store Suspension Equipment
 - 2) Aircraft Stores/Weapons/Ordnance
 - 3) Expendables
- ii. Review, test, and approve all checklists associated with Developmental Stores, Modified Stores, or Expendables, to include:
 - 1) Release and Control
 - 2) Upload
 - 3) Download
 - 4) EOD Operations
 - 5) Arm and De-Arm Procedures
 - 6) Weapons Handling/Movement.
- iii. Ensure each checklist compiled for the DT Environment is assembled in accordance with enclosure (9), and that the cover sheet is printed and signed in accordance with enclosure (9).
- iv. Perform final inspection, of all mods identified in paragraph 7.k.i, with the Mod QAR and Project QAR at completion of installation.
- v. Provide immediate feedback to the Maintenance Officer of any concerns with any Mod installation identified in paragraph 7.k.i.
- vi. Seek to resolve any safety issues that could result in injury to maintenance personnel and aircrew or damage to the aircraft. Un-resolved safety issues or un-resolved issues of any kind shall be forwarded to the Maintenance Officer with a detailed brief/explanation of the concern.

l. **Developmental Weapons Checklist Review Board Shall:**

- i. Review and approve all checklists for developmental weapons/stores under test at VX-30 or VX-31.
- ii. Ensure each checklist is assembled in accordance with enclosure (9).
- iii. Annually review all checklist requirements and guidelines in enclosure (9) and recommend updates.

m. **Projects Coordinator Shall:**

- i. Attend all pre-modification Mod Meetings.
- ii. Review all modification proposals for completeness.
- iii. Ensure the Modification Proposal is complete and signed off before Mod Installation begins.
- iv. Initiate Maintenance Action Forms (MAFS) for installation of Aircraft Modifications, and maintenance of Project System discrepancies in all project aircraft.
- v. Monitor Project Aircraft during installation of Aircraft Modifications to ensure Maintenance Control is aware of the aircraft status and ensure OPNAVINST 4790.2-Series Quality Assurance compliance.
- vi. Track Flight/Software clearances to ensure that they are current for all aircraft scheduled for flight. Notify the MMCO and Squadron Mod Coordinator of expiring flight clearances on a daily basis. Ensure all Ground Test evolutions on project aircraft are tracked/monitored and that all budget required submittals are turned in to the appropriate individuals on time. Keep the MMCO informed and updated on all of the above each day.

n. **Project QAR Shall:**

- i. Implement QA standards and procedures as outlined by the OPNAVINST 4790.2 Series, NA 01-1A-1 SRM AND NA 01-1A-505 AIRCRAFT ELECTRICAL AND ELECTRONIC WIRING.
- ii. Perform surveillance and in-process inspections, utilizing procedures to ensure proper levels of workmanship and equipment have been used in the modification or modification repair of VX-30 or VX-31 aircraft.
- iii. Ensure that corrective actions are initiated to conform to work practices and procedures established by VX-30 or VX-31 QA requirements.
- iv. Initiate local requirements for added inspections required due to nonstandard modifications to special mission aircraft operating in a test and evaluation mission support mode.
- v. Work with engineers and manufacturing representatives when failures indicate the need for changes, redesigns, modification waivers, or QA procedures.
- vi. Execute inspection requirements as identified by the QAO.
- vii. Monitor test equipment used on VX-30 or VX-31 aircraft for proper calibration.
- viii. Monitor employee qualification and certifications for currency.
- ix. Screen technical data, blue prints, modification data, and all associated technical information.
- x. Verify proper completion of modification installation, modification waivers, and configurations.
- xi. Make recommendations to engineering personnel and contractors concerning airworthy aspects of modification/installations.

- xii. Identify, through the QAO, acceptance/rejection concerns before, during, and/or at the completion of aircraft modification installation.

8. **Review:**

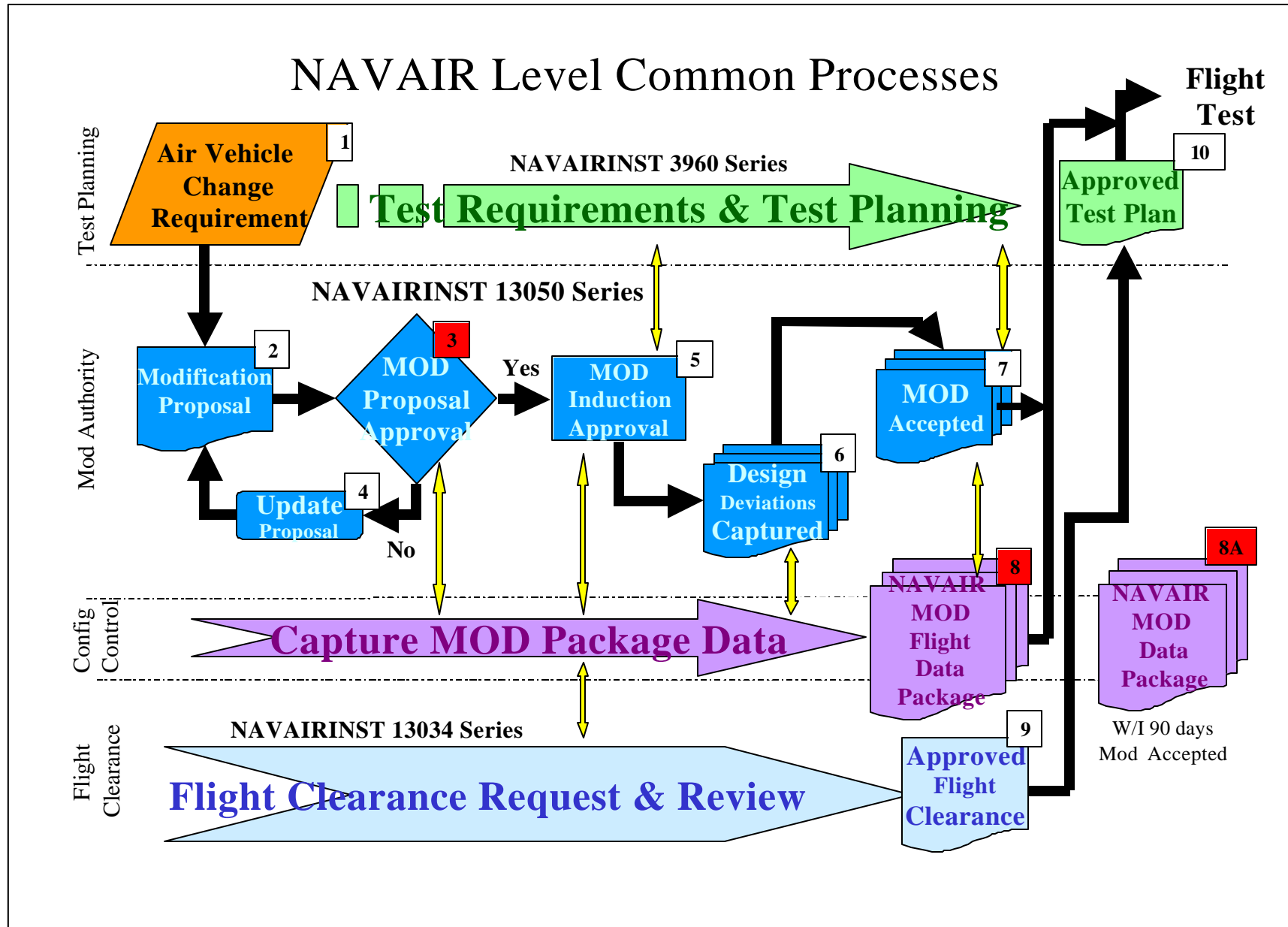
Each Squadron's Mod Coordinator, Maintenance Officer, Technical Director and Chief Test Pilot shall review this instruction annually and provide change recommendations as required to both Commanding Officers for their consideration and approval.

W. Knudson

S. A. Burris

Distribution:

Modification Process Flow Chart



Block 1: Air Vehicle Change Requirement.

Requirement generated to change an air vehicle configuration. Sources of requirement generation include:

1. NAVAIR Program Sponsor, e.g., PMA-265;
2. United States Navy (USN)/Department of Defense (DoD) Research Sponsor, e.g., Naval Research Laboratory (NRL) or Defense Advanced Research Projects Agency (DARPA);
3. U.S Government Agency, e.g., Federal Aviation Administration (FAA) or United States Coast Guard (USCG)
4. Private Corporations, e.g., Boeing Aircraft Company
5. Foreign Military Sales (FMS) Agreements

Block 2: Modification Proposal.

Based upon modification requirements an initial proposal for configuration change is proposed. Change proposals must provide the following minimum information:

1. Sponsoring activity
2. Air vehicle intended for modification
3. Organization(s) proposed to make the modification
4. Key points of contact
5. Modification description.

Block 3: Modification Proposal Approval

1. NAVAIR Controlled Air Vehicle. The Modification Proposal Approval Authority shall:
 - a. Ensure the modification proposal falls within their scope of empowerment, if not, forward those proposals to the appropriate approval authority.
 - b. Ensure the modification proposal is in compliance with all applicable NAVAIR, NAVAIRWARCENACDIV/WPNDIV, Test Wing, and Test Squadron modification instructions.
2. Non-NAVAIR Assets. The aircraft or item controlling custodian shall designate in writing, with the written agreement of the modifying activity, all personnel authorized to approve modifications to their equipment, and what portions of the NAVAIR modification approval and documentation process that will be performed by NAVAIR support. Any modification that involves known hazards to personnel or equipment during modification or checkout shall require written approval to commence from the commanding officer responsible for the activity in direct support of the modification.

Note: This could involve either a squadron or station commander depending upon the facilities, personnel or support involved.

Block 4: Update Modification Proms.

If the Modification Proposal Approval Authority determines that critical elements of the modification proposal are insufficient to induct the air vehicle, they shall notify the modification sponsor and state in writing what action needs to be completed prior to approval to begin modification.

Block 5: Modification Induction Approval.

Modification Induction Approval Authority shall:

1. Verify the modification proposal has been properly approved
2. Verify all required resources are in place to commence
3. Direct initiation of the mod of the air vehicle
4. Execute modification.

Block 6: Design Deviation Captured.

If a modification was approved to begin based upon specific installation and/or design, any deviations from that design shall be documented to assist in flight clearance and final modification approval/acceptance and archiving to assist in any subsequent future modification Proposals interfacing with the current modification.

Block 7: Modification Acceptance Approval.

The modification acceptance approval authority shall ensure all required modification procedures involving the modified air vehicle have been completed to include (but not limited to):

1. Verification of proper installation
2. Quality assurance inspections completed
3. Configuration changes completed
4. Weight and balance updated
5. Aircraft log books updated as required
6. NAVAIR modification data package for flight completed in accordance with Block 8A.

Block 8A: NAVAIR Modification Data Package for Flight.

The NAVAIR standard data package (required prior to flight) is provided in NAVAIR Modification Data Packages.

Block 8B: NAVAIR Modification Final Data Package.

The NAVAIR standard data package required within 90 days of modification acceptance is provided in NAVAIR Modification Data Packages.

Block 9: Approved Flight Clearance.

Every effort shall be made to minimize redundant reviews, while keeping both the ARC and flight clearance authority informed of changes made during the modification and their impact on airworthiness. The modification coordinator shall liaison closely with the Flight Clearance Control Officer (FCCO) to maintain awareness of changes and associated implications for all modifications leading to a flight clearance or flight clearance recommendation. .

Block 10: Approved Test Plan.

Development and review of test plans are conducted following the NAVAIRINST 3960 series. The modification coordinator shall ensure open communication exists with each test team to ensure early identification of design shortfalls, provide timely engineering assessment of modification proposals and installations, and seek rapid and effective resolution of installation issues while keeping flight safety as the overarching requirement. The modification coordinator is also charged with clearly conveying all hazards discovered during the modification proposal development, installation and approval process to members of the Test Team and Test Coordination Team (TCT). Test plan approval will generally follow initial flight clearance approval, however, final approval of test plans depends upon the approval criteria established by the TCT.

Sample Designation Letter

From: Commanding Officer, Air Test and Evaluation Squadron THREE ZERO/ONE
To: (Mr./Ms./Rank)

Subj: DESIGNATION TO SERVE AS _____

Ref: (a) VX-30/31INST 13050.1 [Squadron Modification Policy]
(b) NAVAIRINST 13050.6 [CM of RDT&E Aircraft]
(c) NAVAIRINST 3960.4B [Test Plan Instruction]
(d) NAVAIRINST 13034.1B [Flight Clearance Policy for Manned Aircraft]
(e) NAVAIRINST 13030.2 [Tailored Applications Of Airworthiness Standards For Special Purpose Configurations Of Aircraft And Weapons Systems]
(f) NAVAIRINST 13034.2 [Flight Clearance Policy for Unmanned Systems]

1. Based upon your professional experience, training and demonstrated sound judgment you are designated to serve as _____ within the VX-31 Aircraft/Store Modification Process.
2. You are required to read and completely familiarize yourself with References (a) through (e).
{*references (a) – (f) if this designation letter is for an Engineering Reviewer or Mod Coordinator*}
Once complete with your review you shall discuss any remaining questions or concerns with the Chief Test Pilot {*Commanding Officer in the case of the CTP's Mod Approval Authority Letter*} prior to accepting this assignment.
3. When serving in this capacity you are the Commanding Officer's Direct Representative responsible for implementing safe and effective changes to an aircraft or store configuration required for the RDT&E mission. Always ensure you fully understand the scope of your responsibility as set forth in reference (a). If at any time you feel you are not properly trained to conduct the tasks associated with this assignment, you do not understand the proposal and/or its implications regarding flight safety, or a proposal's expected impact regarding an Aircraft/Store's:
 - Service Life
 - Operating Envelope
 - Performance Capabilities
 - Day/Night/All-Weather Performance
 - Changes in Flight Safety Critical Systems
4. You shall contact the Mod Coordinator and Chief Test Pilot to seek additional assistance and support.
5. Your actions serve to minimize the risk that a change to an aircraft/store will result in a reduction of capability or loss of a vital test resource due to a configuration change. Your effort and vigilance is essential to the accurate control of configuration changes, identification of hazards to personnel and safe implementation of essential design changes required to support the RDT&E efforts of NAVAIR and its customers.

6. (*For Engineering Mod Reviewers Only*) Your allowable scope for Review and Sign-Off of Recommendation to Approve is defined as:
(The TD, Mod Coordinator and Individual's Branch/Division Supervisor agree on the appropriate text for Non-PMs, or cite their existing PM scope to include T/M/S considerations as well.)

S. A. Burris

Copy to:

VX-31 Technical Director

VX-31 Chief Test Pilot

VX-31 Mod Coordinator

VX-31 Maintenance Officer

File

(Date)

1st ENDORSEMENT

From: Individual

To: Commanding Officer, Air Test and Evaluation Squadron THREE (ZERO/ONE)

Subj: ACCEPTANCE OF RESPONSIBILITIES AS _____

1. I have read and fully understand my assignment letter, dated _____.
2. I have read and fully understand all governing instructions associated with the modification of VX-30/31 assigned aircraft, stores or expendables.
3. I accept my assignment as _____.

(Signature)
(First Initial, Middle Initial, Last Name)

Copy to:
VX-30/31 TD
VX-30/31 CTP
Mod Coordinator
File

Mod Coordinator Roles and Responsibilities

The Mod Coordinator represents the Commanding Officer's (CO's) primary interface between Project Teams, the Maintenance Department, and Government Engineering to ensure the modification of assigned aircraft and stores are completed by competent installation teams governed by approved designs. The goal of the modification process is to support the RDT&E effort without compromising the Airworthiness of assigned aircraft and stores whenever possible. If established Airworthiness is considered to be placed at risk as a result of a modification, the Mod Coordinator is responsible for assessing and quantifying that risk for final acceptance by either the Chief Test Pilot (CTP) or the CO. Flight safety is directly tied to the thorough understanding of design changes, effective installation measures, accurate configuration tracking of changes, and compliance with time-tested maintenance practices as established within the Naval Aviation Maintenance Program (NAMP) defined by OPNAVINST 4790. As such, the Mod Coordinator shall:

1. Instruct all Project Teams seeking modification of assigned aircraft/stores on the process and procedures to follow in developing a proposal, routing their request, and complying with installation standards and expectations.
2. Review all Mod Proposals to ensure the Project Team has complied with Enclosure (5) by answering all questions completely, organizing their response, and fully substantiating their proposal. This includes providing additional data when requested by the government review engineer(s) assigned as Mod Reviewers by the Mod Coordinator.
3. Maintain open and effective lines of communication between the CTP, Platform Coordinator, MO, QAO, Maintenance Control, Projects Coordinator, and each Project Team regarding the planning and review status for all:
 - a. Aircraft Inductions for MOD
 - b. MOD Installation Progress
 - c. MOD Acceptance Status
 - d. MOD Removal Planning
4. For each MOD Proposal:
 - a. Review the Aircraft/Store systems affected by the MOD
 - b. Using Enclosure (5) as a guide, establish a Review Chain consisting of all appropriate disciplines (e.g., Structures, Platform Coordinator, QA, Gunner, etc.)
 - c. Ensure the MOD Proposal is organized for rapid review by the assigned MOD Reviewers
 - d. Determine with the Mod Team if the potential hazards warrant additional consideration by the Platform Coordinator, Safety Officer, CTP and/or CO
 - e. Ensure a MOD Induction and MOD Acceptance Checklist is prepared, reviewed, completed and archived
 - f. Determine if Mod Design and/or Pre-Mod Induction Coordination Meetings are required. If the meetings are required:
 - i. Coordinate the invitation of required and desired participants
 - ii. Track and record attendance

- iii. Ensure minutes are recorded for each meeting and archived with the respective Mod Proposal
 - iv. Serve as the Chair of Mod Design Meetings unless directed otherwise by the CTP
 - v. Ensure the MO's Designee serves as the Chair of Mod Induction Meetings, unless directed otherwise by the CO
- g. Ensure each Mod Proposal is routed completely, and that all issues, questions, or concerns raised by Mod Reviewers, to include potential design changes, have been resolved prior to Mod Induction
- h. Ensure a Mod Acceptance Checklist is completed for each Mod prior to returning an aircraft or store to service
- i. Ensure a complete data package exists in accordance with reference (a) prior to completing the Mod Acceptance
- j. Ensure a verifiable and traceable configuration tracking process exists, with all process members identified prior to Mod Installation
- k. Ensure all installation deviations are:
- i. Properly documented
 - ii. Referred to the appropriate Review Authority
 - iii. Resolved as accepted or corrected prior to Mod Acceptance
- l. Identify and document all items agreed to be considered non-configurable items during the installation or subject to subsequent test operation, e.g., individual circuit cards, wire bundle ties, non-intrusive wire hanger clips, component changes with approved part numbers and acceptance qualification procedures, etc.
- m. Coordinate with the appropriate Flight Clearance Control Officer (FCCO) to initiate the appropriate flight clearance requests and reviews
- n. Ensure all hazards and precautions identified throughout the Proposal Review and Mod Installation process are forwarded to:
- i. Test Team participants responsible for Test Plan or Test Plan Amendment development and submission
 - ii. Maintenance Officer (MO) for dissemination to the appropriate activities within the department (e.g., Maintenance Control, QA, Line, Troubleshooters, Ordnance, etc.)
 - iii. Appropriate external activities (e.g., Flight Test Engineers (FTEs), Fire Fighters, Station Weapons, and/or EOD)
- o. Serve as the Mod Approval Authority if so designated in writing by the CO/Air Vehicle Owner for those modifications that are not expected to result in a degradation to:
- i. Operating Envelope

- ii. Service Life
 - iii. Performance Capability
 - iv. Night/All-Weather/NVD Operation
- p. Forward to the CTP for Approval those Modification Proposals that could result in:
- i. Changes or removal of OEM Controls and Displays
 - ii. Changes or loss of Cockpit Lighting
 - iii. Changes or loss of NVD Compatibility
 - iv. Carriage of Non-Jettisonable Stores in excess of 400 lbs
 - v. Temporary restrictions in Operating Envelope, Service Life and/or Performance Capability
- q. Forward to the CO for Approval those Modification Proposals that could result in:
- i. Permanent Reduction in Operating Envelopes (e.g., reduced max Nz)
 - ii. Permanent Reduction in Service Life (e.g., loss of expected FLE)
 - iii. Permanent Loss of Performance Capability (e.g., Permanent Elimination of the Gun, Inability to CQ, Permanent restriction from All-Weather Ops, Loss of IFR Certification, Day Only Operations)
5. Establish and maintain a personnel tracking database for individuals and qualifications associated with the Mod Proposal Review and Mod Acceptance processes.
6. Archive all Mod Proposal Submissions, Approvals, Deviations, and Amendments.
7. Provide recommendations to the CO for updates to this instruction as required. Ensure command compliance with NAVAIR and Test Wing directives and instructions regarding the modification of assigned RDT&E aircraft and stores.

Mod Reviewer Roles and Responsibilities

1. Read and fully understand this instruction and references (a) through (e).
2. Serve as the CO's direct representative in their functional discipline to assess:
 - a. The likelihood of successfully installing the proposed design change, and
 - b. The reasonableness of engineering rigor applied to the design change, and
 - c. The risk associated with potentially altering the operating envelope, service life or performance capability of an air vehicle that would result in an irreversible loss or degradation in those areas.
3. Understand that the Mod Review process is based upon risk assessment, not risk acceptance (that authority remains with the CO and his/her designated Mod Approval Authorities). Whenever a Mod Proposal indicates a likelihood of restricting an aircraft's safe operation or introducing hazards to personnel, the aircraft, or store, the Mod Reviewer shall indicate what those likely hazards are, and recommend either design changes that could be taken to eliminate the hazard or control measures that can be employed to mitigate or eliminate the hazard.
4. Strive to contact the respective design agent directly for each Mod Proposal when the proposal is:
 - a. Not fully understood, or
 - b. Lacking in sufficient supporting information, or
 - c. Inconsistent with expectations set forth in this instruction, reference (a), and/or Mod Design Coordination Meeting agreements as documented in a meeting's minutes.
5. Sign-off recommending approval for those proposals in which certified to do so by the TD.
6. Seek additional counsel and review when either the design engineering basis, or scope of change is beyond current experience and training levels.
7. Maintain close coordination with the Mod Coordinator regarding status of reviews, availability to support reviews, Design Coordination Meetings, and Mod Installation Deviation Reviews.
8. Define in writing as part of the Mod Reviewer's Comments during routing/review specific, traceable, and verifiable inspection criteria when warranted for intermediate and/or final acceptance inspections required during mod installation.
9. Determine how mod installation deviations within your functional area are to be addressed, documented, and adjudicated. Ensure all deviations are either accepted or rejected with recommendations on steps to take to gain acceptance. Ensure that all floor/shop personnel authorized to approve deviations on your behalf are properly qualified to do so, and fully understand that they cannot approve their own installation work/activity, i.e., the installer cannot also serve as the approving inspector.

Mod Proposal Questionnaire and Data Package Expectations

A. Flight Safety Critical Component Review:

Provide a brief statement describing changes and potential operational impacts associated with any of the following flight safety critical systems as a result of implementing the design changes detailed in this Mod Proposal:

1. Primary Attitude Reference System, including:
 - a. INS/IMU (if applicable)
 - b. Attitude Gyros
 - c. Rate Gyros
 - d. Pitot Static System (Including Airspeed, Altitude and VSI)
 - e. Primary Attitude Display Indicator (HUD or VDI)
 - f. Secondary Attitude Display Indicator
2. Primary Heading Indication System
3. Primary Flight Controls (Stabs, Rudders, Vertical Fins, Flaps)
4. Landing Gear
5. Tail Hook (if applicable)
6. Engines and Throttle Control (Does not include Auto Throttles)
7. Thrust Vector Control:
 - a. Nozzle Actuation and Control for STOVL/VSTOL Fixed Wing
 - b. Collective and Cyclic Control for Rotary Wing
8. RF Transmission Interlocks (e.g., WonW Protection Logic)
9. Stores Management / Armament Control / Store Jettison Systems
10. Fuel Transfer and Balance Systems
11. Primary UHF Radio
12. TACAN
13. IFF
14. Primary AC Power Source(s)
15. Secondary AC Power Source(s)
16. Primary DC Power Source(s)
17. Secondary Power Source(s)

B. Aerodynamics and Store Separation Review

1. Provide answers to the following questions:

- a. Does the Mod include changes to the external configuration of the aircraft?
- b. Does this Mod include changes to the external configuration of a TACMAN or AIR 4.0P Flight Clearance approved store?
- c. Does this Mod involve a developmental store, or any item, including expendables, that has not yet been approved via the TACMAN or existing Flight Clearance? (Expendables include chaff, flares, decoys, etc.)
- d. Will this Mod result in changes to the Mass Properties, i.e., weight, center of gravity (CG) location, and/or Moments of Inertia of an approved store?
- e. Does this Mod include a store that is intended to be launched, dropped, separated and/or jettisoned from the carriage aircraft at flight conditions outside of an existing TACMAN or AIR 4.0P Flight Clearance? Does it include a store loadout that has not been approved via the TACMAN or existing AIR 4.0P Flight Clearance? Does this Mod intend to change an aircraft's store release settings (e.g., CAD settings, ejector travel, release intervals, etc.) or the store's internal launch sequence and control functions (e.g., safe and arm settings, fin deployment, fin engagement timelines, etc.)?
- f. Does this Mod have the potential to affect Flying Qualities or aircraft Performance? Consider the potential for CG Shifts, introduction of new Store Drag characteristics, Asymmetric Load effects, Store Launch limitations and Store Jettison limitations.
- g. Will this Mod require any changes to components, sensors, or data processing systems involved with an aircraft's air data system? Consider any external skin change that might disrupt the flow upstream of any Pitot-Static or Angle of Attack (AOA) sensors.

2. Based upon an answer of YES to one or more of the questions listed above, the Mod Proposal should provide supporting data as detailed below, since an AERO/SEP review will be required of the proposal:

a. **Aircraft External Configuration Change:**

- i. Provide drawings with dimensional data of the modifications intended for the external configuration of the aircraft.
- ii. Describe the changes to Mass Properties and associated tolerances allowed relative to Aircraft CG locations. Describe the source of Mass Properties data, i.e., measured or calculated. Units to be used are:
 - 1) Weight (lbs)
 - 2) CG location via X, Y and Z axes based upon a defined point on the aircraft (inches)

- 3) Pitch (I_{yy}), Yaw (I_{zz}) and Roll (I_{xx}) Moments of Inertia (calculated in either slug-ft² or lb_m-in²).
 - iii. Propose flight limitations, specifically:
 - 1) Airspeed (KCAS and IMN)
 - 2) Altitude (ft in MSL or AGL)
 - 3) Normal Acceleration (N_z)
 - 4) Bank Angle (AOB in deg°)
 - 5) Roll Rate (deg°/sec)
 - iv. Will this Mod change the aircraft's exterior/mold line? Consider:
 - 1) Adding or removing antennas
 - 2) Wing Fences
 - 3) Vortex Generators
 - 4) Ventral Fins
 - 5) Radome Changes, etc.
 - v. Predicted effects on potential limitations resulting from potential flow or input disturbances to existing air data sensors, low-altitude warning sensors, and/or navigation sensors.
- b. **Changes to Existing/Approved Stores, or Qualification of New/Developmental Stores:**
- i. Provide drawings with dimensional data of the modifications intended for the store using the existing store as the baseline.
 - ii. Describe the changes to Mass Properties and associated tolerances allowed relative to expected suspension location based upon the intended launcher/carriage device(s). Describe any limitations associated with allowable load carriage capacity of the suspension equipment. Describe the source of Mass Properties data, i.e., measured or calculated. Units to be used are:
 - 1) Weight (lbs)
 - 2) CG location via X, Y and Z axes based upon a defined point on the aircraft (inches)
 - 3) Pitch (I_{yy}), Yaw (I_{zz}) and Roll (I_{xx}) Moments of Inertia (calculated in either slug-ft² or lb_m-in²).
 - iii. Identify all requested aircraft store carriage locations; consider the requirements of other projects to carry the proposed store for their use in order to minimize reconfiguration of the aircraft during extended flight test periods.
 - iv. Propose Carriage / Release / Jettison limitations, specifically:
 - 1) Airspeed (KCAS and IMN)

- 2) Altitude (ft in MSL or AGL)
 - 3) Normal Acceleration (N_z)
 - 4) Store Specific, e.g., Seeker On-Time, Weapon On-Time, Thermal Concerns, etc.
- v. For changes to Existing/Approved Stores provide a copy of the current or most recent Flight Clearance or TACMAN Authorization for the store intended for modification.

***** Note: All Non-Jettisonable Stores > 400 lbs require CTP Approval for Flight Test Carriage, regardless of Flight Clearance Approvals *****

c. Separation / Jettison:

- i. Provide aerodynamic data for the store and describe its source, i.e., wind tunnel or specific aero-prediction codes.
- ii. Provide an aero and/or jettison study for each requested store carriage station for each requested Type/Model/Series aircraft.
- iii. Describe changes made to the separation autopilot for an existing store, or describe the separation autopilot design and function for a new/developmental store.
- iv. Describe changes made to the launch timeline and system function for an existing store, or describe the design and system function plan for a new/developmental store.
- v. Describe store propulsion system performance if applicable. For rocket motors, provide:
 - 1) Thrust-Time History
 - 2) Time History of Mass Property Changes during Fly-Out (Weight, CG Location and Moments of Inertia Change)

d. Flying Qualities and Performance (FQ&P):

- i. Submit summary reports highlighting changes or expected changes in handling qualities and the basis for the assessment, e.g., results from Manned Flight Simulation, CFD, Wind Tunnel or previous flight test results.
- ii. Identify Max Asymmetry for store carriage and post store release described in terms of Store Weight and Moment Arm for all intended carriage and/or potential Hung Store configurations.

e. Air Data:

- i. Describe all changes made to any component, or near any component sensor, within the air data system.
- ii. Detail proposed limitations associated with the Air Data System.

C. Structures Review

Prior to answering the questions below, please note the following:

- The term modification is intended to include the addition to, change, alteration, or reconfiguration of a system.
- A structural change is defined as any change that alters material, load path, strength, rigidity, loads, mass properties, durability, and damage tolerance to any item/structure that carries load, regardless of the size of the change. This includes drilling holes, adding clips, and/or enlarging holes when adding or attaching items to the exterior or interior of an air vehicle or store.

1. Provide answers to the following questions:

- a. Based upon the notes above, will this Mod include any structural change to the aircraft primary or secondary structure?
- b. Will this Mod include any structural changes to aircraft store suspension equipment, e.g., bomb racks, adapters, launchers or pylons?
- c. Will this Mod include any structural changes to Stores, or the qualification of New/Developmental Stores to include, but not limited to:
 - Missiles
 - Rockets
 - Bombs
 - Mines
 - Torpedoes
 - Pyrotechnic Devices
 - Sonobuoys
 - FLIR Pods
 - Fuel Tanks / Drop Tanks
 - Gun Pods
 - ECM Pods
 - Tow Reel Pods or Towed Decoys
- d. Will this Mod result in changes to aircraft life support/egress equipment, e.g., ejection seats, environmental protective systems, parachute systems, aircrew survival equipment and harness systems, aircrew mounted systems (e.g., Helmets, NVDs, Visors, etc.), and/or Search and Rescue equipment?
- e. Will this Mod change the aircraft's exterior/mold line? Consider:
 - Adding or removing antennas
 - Wing Fences
 - Vortex Generators
 - Ventral Fins
 - Radome Changes, etc.
- f. Will this Mod change the physical characteristics of exterior or interior avionics systems? Consider:
 - Separation Camera Systems
 - Equipment Mounting Racks

- Mission Computers
 - Cockpit Control and Display Hardware
 - Flight Instrument Hardware Changes
 - Flight Control Systems and Computers
 - Tactical Sensor Hardware
 - Store Management Computer Hardware
 - COMM / NAV / IFF Hardware
 - Electronic Warfare Hardware
- g. Will this Mod introduce Stores/Weapons/Expendables not listed in the current TACMAN or an approved AIR 4.0P Flight Clearance?
- h. Will Stores introduced or modified as a result of this request result in an envelope expansion of current TACMAN or Flight Clearance Limits and/or change existing loadout, carriage and weapon release sequences?
2. Based upon an answer of YES to one or more of the questions listed above, the Mod Proposal should provide supporting data as detailed below, since a Structural Review will be required of the proposal:

Please Note:

If a data item requested has been omitted, please develop a justification/rationale for why it should not be required for Mod approval.

It is highly recommended that the cognizant design agent contact the Mod Reviewer assigned structural review responsibility prior to generating supporting Mod Package Data elements to allow tailoring of inputs and minimize design review timelines.

- a. **Structural Description, including:**
- i. Conceptual Sketches
 - ii. Level II Drawing Package
 - iii. 3-View installation drawings as necessary to fully describe the configuration
 - iv. Desired aircraft flight envelope for store flight profile as appropriate for separated stores
 - v. Desired Store Loadouts
 - vi. Store to Aircraft Fitment (Mechanical Compatibility)
- b. **Mass Properties:**
Measured and calculated Weight, Center of Gravity and Mass Moments of Inertia
- c. **Structural Loads, including:**
- i. Inertial: MIL-A-8591 and Aircraft Specific Load Conditions
 - ii. Special Loads:
 - 1) Hammershock and Pressure Loads, Jacking Loads, Hoisting Loads, Walking and Handling Loads, Thermal Loads
 - 2) Note: Catapulting and Arrested Landing compatibility are generally not reviewed unless specifically requested; the Project is expected to not

violate Cat/Trap capabilities unless specifically stated up front in the Mod Proposal.

3) MIL-A-8865B Crashworthiness Considerations

iii. Aerodynamic Loads, including:

- 1) Loads on stores in the flowfield based upon CFD analysis or wind tunnel tests of integrated aircraft/store models.
- 2) If coordinated with the Structural Mod Reviewer, airloads may be developed using free stream aerodynamic data with AOA and Sideslip computed according to the appendices of the current version of MIL-A-8591. Free Stream aero loads should be developed from wind tunnel data (if available), engineering level computer codes (e.g., Missile DATCOM, Missile 3, etc.), or CFD Codes (e.g., PANAIR, USAERO, VSAERO, N/S etc.)

iv. External Loads, including:

- 1) Finite Element Analysis (FEA) models of Racks, Stores and Appendages
- 2) NASTRAN/ABAQUS Inertial Relief models
- 3) Hook / Swaybrace Loads
- 4) Shear and Moment diagrams

v. Internal Loads using:

- 1) Free Body diagrams of individual parts
- 2) FEA as required/requested

d. **Material Allowables based upon:**

- i. MIL-HDBK-5 (Metallic Materials)
- ii. MIL-HDBK-17 (Plastics and Composites)
- iii. MIL-HDBK-23 (Sandwich Composites)
- iv. SD-24 (Material Exclusion List)
- v. ICAN (Composite Material Properties)
- vi. Material Allowable Testing (As Built Test Results)

e. **Strength Analysis, that considers:**

- i. Classical Analysis (i.e., hand calculation) compared with FEA (e.g., ABAQUS or NASTRAN results)
- ii. Required Margin of Safety, demonstrating:
 - 1) **1.5 Factor of Safety** based upon Structural Testing Results
 - 2) **2.0 Factor of Safety** based upon Analysis without Testing

f. Flutter Reviews :

- i. Mod Proposals involving flutter critical applications will in general be forwarded to AIR 4.3.3.3 for Review by Assigned Personnel
- ii. Evaluations should be based upon Specialized Flutter Codes operated within NASTRAN or ASTROS
- iii. Require demonstration of a minimum flutter margin of 15%

g. Structural Testing Requirements:

- i. Static – required when analytical margin presents a Factor of Safety < 2 and/or when the structural configuration is such that load paths are difficult to define based upon unusual or complex designs
- ii. Dynamic:
 - 1) Mode shape and frequency test results sought to verify structural models employed
 - 2) Pit Ejection Test results as requested based upon specific proposal

h. Noise & Vibration / Fatigue Environment Considerations:

- i. Analysis and life assessments are considered critical for stores and systems intended for extended use, e.g., Instrumentation Pods and Camera Installations
- ii. Design Goal should be to maintain all single point failure systems/components below the expected endurance limit
- iii. Often waived for limited use experimental stores with coordination up front between the design engineers and Mod & Flight Clearance Review Engineers

D. Battery Engineering Review

1. Provide answers to the following questions:
 - a. Does the proposed Mod include any lithium batteries?
 - b. Will this Mod include any non-lithium active-cell, secondary (i.e., rechargeable), or reserve (i.e., remotely activated) batteries that:
 - i. Generate >42 volts DC, or
 - ii. Provide >60 Watt-Hrs, or
 - iii. Exhibit a Sustained Discharge >200 Watts?
 - c. Will this Mod result in the co-location of batteries and fuel and/or fuel vapor within the same compartment within a location that may result in immediate contact with energetic materials?
(Note: Consider both static and in-flight conditions)
2. Based upon an answer of YES to one or more of the questions listed above, the Mod Proposal should provide supporting data as detailed below, since a Battery review will be required of the proposal:
 - a. **Lithium Batteries require:**
 - i. Either Weapons System Engineering Safety Review Board (WSESRB) certification for a specific application or a copy of the lithium battery safety clearance letter, or
 - ii. Evidence of previous USN Platform installation and performance characterization that captures the battery's response to electrical and thermal stress, or
 - iii. For untested batteries submit a lithium battery safety data package as defined by the Navy's safety technical manual titled "S9310-AQ-SAF-010 Batteries, Navy Lithium Safety Program Responsibilities and Procedures". The package should include:
 - 1) Technical Description of the Battery Design
 - 2) Photos, Drawings and Electrical Schematics of the System Design
 - 3) Summary of Safety and Performance Testing completed to Date
 - iv. Untested batteries shall be required to undergo USN Safety Testing to characterize a battery's response to electrical and thermal stress. If the test results reveal an unacceptable risk, design changes will be requested with successful follow-up tests prior to Mod approval.
 - b. **High-Capacity / Non-Lithium Batteries require:**
 - i. Battery test summaries describing electric al performance during thermal, vibration and/or shock environmental stress. Test summaries should specify test conditions and results. Where-in the Mod Proposal should also describe the basic battery design and its application within the modified aircraft/component/store.

- ii. Batteries that have not undergone performance testing shall also be required to complete USN testing as described in Section D.2.a.iv above prior to approval of a flight clearance.

c. **Considerations for Co-location of Batteries within Fuel or Fuel Vapor Areas:**

- i. Describe the potential for interaction (including chemical decomposition, combustion initiation, deflagration and/or detonation) between the battery and stored fuel, fuel vapors and/or stored energetic materials (including explosives, warheads, rocket motors, CADs, igniters, etc.) due to arcing, venting or internal heat dissipation during battery discharge.
- ii. Designs that indicate a strong potential for interaction between batteries and fuel or energetic materials will likely result in a design change request prior to approval for installation.

E. Electromagnetic Environmental Effects (E³) Review

1. Provide answers to the following questions:
 - a. Does this Mod involve:
 - i. Changes or interaction with aircraft/store wiring and/or power, or
 - ii. Re-routing of original, or previously modified, aircraft/project wiring, or
 - iii. Install new project wiring within and aircraft or store?
 - b. Will this Mod include:
 - i. Electronic circuitry that may result in conducted or radiated emissions that present a potential for interference with flight critical systems?
 - ii. The installation or re-location of transmitters, receivers, antennas, power supplies or similar electronic components/interfaces?
 - c. Does this Mod contain Electrically Initiated Devices (EID)?
 - d. Does this Mod involve Classified Information Processing Systems (CLIPS)?
2. Based upon an answer of YES to one or more of the questions listed above, the Mod Proposal should provide supporting data as detailed below, since an E³ review will be required of the proposal:
 - a. **Aircraft Wiring and Power Changes should include:**
 - i. An overview description of design, general installation plans, hardware interfaces and wire routing plans
 - ii. Annotated drawings or sketches that capture:
 - 1) Wire size and types planned for installation
 - 2) Shield techniques to be employed
 - 3) Termination techniques planned for the installation
 - 4) Design aspects employed to mitigate Electromagnetic Interference (EMI), e.g., twisted pairs, over-braid shielding, EMI connectors, etc.
 - 5) Identify power return path(s), i.e., via conductors (wires) or structure
 - 6) Identify signal return path(s), i.e., via conductors or structure
 - 7) Identify RF signal ground path(s), i.e., via coaxial cable shields or another means (describe)

- iii. State expressly if the Mod will modify, move or change any Flight Control Computers, Mission Computers or Communication Systems/Wiring. Note this includes routing powered cabling alongside Flight Control/MUX wire bundles.
- iv. Summarize previous EMI/EMC test results and supporting data that can be considered during proposal review and expediting a request for clearance.
- v. Ensure any changes required to wire routing during installation are identified and updated immediately within the Mod Proposal.
- vi. Summarize the expected aircraft generator(s) loads.

b. Modified or New Equipment require:

- i. J/F 12 Number for all transmitters and receivers as delineated in OPNAVINST 2400.20E
- ii. Manufacturer, Model Number and System Specifications that include Bandwidth, Power In, Power Out and Antenna Gain for:
 - 1) Transmitters
 - 2) Receivers
 - 3) Antennas
 - 4) Other Emission Sources
- iii. Identification of all known precautions relative to:
 - 1) Hazards of Electromagnetic Radiation to Personnel (HERP)
 - 2) Hazards of Electromagnetic Radiation to Fuels (HERF)
 - 3) Hazards of Electromagnetic Radiation to Ordnance (HERO)
- iv. Narrative description of design techniques employed to mitigate EMI among hardware components, e.g., gaskets, sealants, conductive finishes, EMI filters, cable shielding, etc. Describe any structure/chassis design efforts to provide RF shielding of internal electronics.
- v. Describe how the design ensures the electrical bonding of mating structure surfaces meet the requirement of 2.5 mO resistance (e.g., metal-to-metal surfaces or bonding straps)
- vi. Summarize Conducted and Radiated Emissions (CE/RE) and Conducted and Radiated Susceptibilities (CS/RS) test results involving Flight Safety Critical Equipment. The following defines Test Result formatting and Test Methods:
 - MIL-STD-461, and
 - CE102 & 106
 - CS101, 114, & 115
 - RE102 & 103
 - RS103

- vii. For non-Flight Safety Critical Equipment, summarize Conducted and Radiated Emission testing referencing:
 - MIL-STD-461E, and
 - CE102 & 106
 - RE102 & 103
- viii. Provide operating procedures for all operational modes of the new or modified system.
- ix. Weight and Balance, effect and specific.

c. **Electrically Initiated Devices (EIDs) require:**

- i. Determination if the energetic materials or components comply with NAVSEA OP3565
- ii. HERO Classification
- iii. HERO Test Report Summaries/Analysis Results
- iv. For those items ruled as not HERO safe a description of potential aircraft safe operation and mission performance impacts
- v. Determination if the 25 KV handling requirement for Electrostatic Discharge (ESD) has been met
- vi. Definition of safety and mission performance impacts based upon EID susceptibility to ESD

F. Automated Information Security (AIS) TEMPEST Review

1. In order to conduct classified data processing, supporting data packages must provide evidence that AIS security concerns have been evaluated whenever a modification adds, removes or modifies any system that:

- Processes,
- Displays,
- Transmits
- Receives or Employs classified or National Security Information

The governing instructions that serve as the basis for AIS evaluations currently include:

- OPNAVINST 5510.93E [Control of Compromising Emanations]
- NAVAIRINST 2241.1 [TEMPEST Testing of RDT&E Aircraft]

To assist in the determination if the Mod will involve processing of classified data or interface with Classified Information Processing Systems (CLIPS), provide answers to the following questions:

- a. Does this Mod involve processing of classified information?
 - b. Will the Mod interface with any Receivers, Transmitters or Transmitter/Receivers?
 - c. Will the Mod interface with any existing CLIPS?
 - d. Will the Mod interface, change or update any software involved with a Red Processing System?
 - e. Will any Red Processing as a result of this new/updated installation occur within 1 meter of a transmitter?
2. If the answer to any question above is **YES**, then the modification proposal requires a review by a Certified TEMPEST Technical Authority (CTTA), generally assigned to Code 5.1.7.3 located within the NAWC Aircraft Division for a TEMPEST Vulnerability Assessment (TVA). The following information is required to conduct a TVA:
 - a. **Classification of the Data Processed**, i.e. Confidential, Secret, Top Secret or SCI
 - b. **Geographical location of planned employment**, i.e. China Lake Ranges, Pt Mugu Sea Ranges, Eglin Ranges, etc.
 - c. **Information Format**, i.e. Analog, Digital or Both
 - d. **Red Classified Processing Data Rate**
 - e. **Red Classified Processing Pulse Width and Amplitude**
 - f. **Test Data results** from System EMI Radiated and Conducted Emissions Testing previously conducted

G. Platform Coordinator Review

1. Provide answers to the following questions:

- a. Are any inputs required by Aircrew to operate or control the installed/modified systems or items as a result of this Mod?
- b. Does this Mod include Modified or Developmental Stores?
- c. As a result of this Mod should any NATOPS Procedures or Checklists be modified?

Consider Pocket Checklists (PCL), NATOPS Manuals, Performance Charts, TACMAN and Tactical PCL (Store Preflight, Carriage and Limitation Summaries).

- d. Is this Mod expected to change aircraft Flying Qualities and/or Performance (FQ&P)?

Consider if CG has changed, Flight Control Surface Size, Shape or Movement changed, Flight Control Laws changed, or Mold Lines Changed.

- e. Will anything in this Mod restrict All-Weather / Night / NVD operations?
- f. Will this Mod result in a change or loss of any existing Cockpit Control, Display, Accessory or Lighting? Are any Cockpit Panels or Displays intended to be re-located?

2. Based upon an answer of **YES** to one or more of the questions listed above, the Mod Proposal should provide supporting data as detailed below, since a review by the Platform Coordinator will be required of the proposal.

a. **System Controls:**

- i. Provide drawings that depict cockpit controls, switch positions and locations.
- ii. Ensure switches are readily accessible by the Pilot/NFO and allow easy operation with adequate switch feel differentiation to allow operation without consuming excessive Heads-Down time. If the switch is expected to be operated in a Night Environment it needs to be properly backlit or console illuminated to allow Night and NVD compatibility.
- iii. Ensure a Hands-On Throttle and Stick (HOTAS) functional design is employed for High Task / Workload environments, e.g., High Speed Camera activation during Store Separation Testing.
- iv. Ensure all Switches are clearly labeled with regards to the specific control function.
- v. Ensure Switch Position Orientation is consistent with the actual control task or similar aircraft control functions, e.g., Fore/Aft, Up/Down or In/Out.
- vi. Ensure all Cockpit installations retain NVD compatibility.

- vii. Ensure a Single Master Power Switch exists and functions properly for ready termination of a system under control or test.

b. **Developmental Stores:**

- i. Define Store Mass Properties to allow ready computation of A/C CG initiation and movement in terms defined in the PCL to allow ready in-flight computation of Asymmetry and Handling Quality impacts.
- ii. Describe intended Loadouts and Carriage Points.
- iii. Detail all expected Store Carriage / Release / Jettison / Operational Limitations, to include:
 - Max KCAS/IMN (Min allowable for Jettison/Release)
 - Altitude (ft MSL or AGL as applicable)
 - N_z Limits (Symmetric and Rolling)
 - Seeker On-Time / Weapon On-Time / Thermal Peak and/or Duration

Note: Carriage of Non-Jettisonable Stores >400 lbs requires CTP Approval.

c. **Checklist or Publication Changes:**

- i. Submit all proposed changes to NATOPS, PCLs, TACMAN, Tactical PCL or Performance Manuals for Review.
- ii. Identify any NATOPS restriction or operating procedure that may be ignored, violated, or modified as a result of the Mod.

- d. **Hazards** – Define all anticipated hazards introduced as a result of system checkout, installation, removal or operation and associated risk mitigation measures or precautions.

Platform Coordinator Roles and Responsibilities

1. Read and understand this instruction and the current version of references (a) – (d). Discuss all questions with regards to responsibilities, scope of empowerment or process expectations with the Chief Test Pilot (CTP) prior to acceptance of assignment as the Platform Coordinator.
2. Train your relief on the process, expectations, and responsibilities associated with assignment as the Platform Coordinator.
3. Serve as the Commanding Officer's Direct Representative in reviewing each Mod Proposal routed to you by the Mod Coordinator and provide comments as required with each proposal to ensure:
 - a. All test unique devices, store cabling, connections, and controllers are uniquely identified for easy visual observation within the test environment. Parts shall include serial numbers, store cables, and store shorting plugs shall be marked with orange coatings or tape, and cockpit control panels shall be painted NVD compatible orange. Developmental stores should be painted in a highly visible paint scheme or marked with photogrammetric indices for high speed camera analysis. Self-propelled stores (e.g., cruise missiles) expected to be chased by manned aircraft should also be painted with a high optic color that is easily discernable against the expected terrain/sea background. Weapons that require forward quarter visual pickup should consider employment of smoke generators to aid visual acquisition by intercepting aircrew.
 - b. Cockpit control devices shall be clearly labeled as to their function. Switch movement should be intuitive based upon the action commanded. A single master power switch should exist for quick termination of the test item. Switches shall be large enough to preclude damage from expected cockpit accessories, e.g., NAV bags, NVD containers, or PCLs. Switch guards shall be installed to prevent inadvertent system shut-off for non-locking switches if unintended switch movement would present a safety of flight or safety of test concern.
 - c. Cockpit controls shall be NVD compatible unless specific approval is received by the CTP for installation. In general controls should include NVD compatible backlighting or NVD flood light illumination of control faces and switch position labels to allow scheduling flexibility to support both Day and Night operations.
 - d. No proposed changes in existing cockpit controls and displays, control functions, or cockpit lighting shall be accepted without CTP approval. Previous examples of items to avoid include: removal of chart lights to power an instrumentation panel, or the removal of cockpit moving map capability.
 - e. Review the installation location proposed for all test article control devices to ensure reasonable accessibility exists and that the device actuation occurs outside of SOF/SOT maneuvers if the control is not HOTAS actuated. Consider having to reach for controls, bending down to a low section on the center console, reaching aft, or having to move a NAV Bag and forcing the pilot to rearrange personal gear during test runs to actuate a device during a test run.

- f. Ensure all stores in excess of 400 lbs are jettison capable unless specifically approved for use by the CTP.
 - g. Determine if the Mod proposal presents a likely change to flying qualities. If the proposal is likely to introduce a potential change, ensure the expected flight characteristics have been identified, described, and forwarded by the Mod Proposal Team to the Test Coordination Team for their review and consideration. Ensure these descriptions have been forwarded to the appropriate Test Planning groups for Test Plan/Amendment incorporation.
 - h. Review all proposed NATOPS and Checklist Changes that are intended for aircrew employment for appropriate terminology consistent with the NATOPS definitions of WARNING, CAUTION, and NOTE. Ensure all potential RDT&E qualified aircrew could easily understand proposed changes.
 - i. Coordinate with Aero Review personnel to determine if developmental or modified store proposals have been assessed as likely to produce store-to-aircraft or store-to-store collisions if release is intended during test operations. Ensure all potential collision hazards are forwarded to the Test Planning activities for incorporation into applicable Test Plans/Amendments.
 - j. Review all proposals involving potential hazards to ground personnel, load teams, troubleshooters, and/or Plane Captains, with the Gunner and QAO to ensure the hazard and appropriate precautions are clearly explained and proper precautions proposed. Ensure those hazards and precautions have been forwarded to the Test Team for incorporation in the Test Plan or the Test Plan Amendment.
- 4. Provide specific comments, directions, and/or design change recommendations in writing on each Mod Proposal that fails to support the considerations discussed above using the mod review process. Work with the Mod Coordinator to communicate concerns and change recommendations to the sponsoring Project Team for each Mod Proposal in question.
 - 5. Train all incoming platform test aircrew on their responsibilities as Project Officers in coordinating modification proposal requests and the Mod Approval process prior to their assignment on a test team.
 - 6. Ensure platform Flight Test Engineers (FTEs) and Flight Test Conductors (FTCs) receive appropriate training on the Mod Approval Process and Test Team expectations regarding the modification of aircraft for RDT&E operations.
 - 7. Work with platform specific Mod Teams to strive to design aircraft/instrumentation modifications that ensure each test aircraft:
 - a. Retains Day/Night/All-Weather/NVD capability
 - b. Exhibit minimal or no degradation to Flying Qualities
 - c. Retains emergency store jettison capability
 - d. Retains the original design envelope, service life and performance capability

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8. Advise the CTP whenever proposed changes cannot comply with any of the above intentions.
9. Nominate personnel demonstrating effective understanding, personal responsibility, and sufficient RDT&E experience to receive CO designation to sign "By Direction" for the Platform Coordinator in reviewing Mod Proposals.

VX-30/31 MOD Induction Checklist for Hardware Changes

Action Item:	Certified By:
1. Specific MOD Installation Intermediate Inspection Procedures Established and Provided to Quality Assurance (QA) in writing (Action: Project QAR)	<hr/> Signature <i>(Name / Organization)</i> <hr/> Date
2. Installation Design Package Accepted and Approved (Action: Mod Coordinator)	<hr/> Signature <i>(Name / Organization)</i> <hr/> Date
3. Installation Hazards Identified and Communicated to Installation Team and Maintenance Department. (Action: Mod Coordinator and MMCO) MMCO to initiate a brief to the Maintenance Officer.	<hr/> Signature <i>(Name / Organization)</i> <hr/> Date <hr/> Signature <i>(Name / Organization)</i> <hr/> Date
4. Installation Team briefed on OPNAVINST 4790 compliance expectations, Maintenance Control Interface and expectations, VIDS/MAF Procedures, Installation Deviation Notification Procedures, Foreign National Control Measures, SE/Tool Checkout Procedures. (Action: QAO and MMCO)	<hr/> Signature <i>(Name / Organization)</i> <hr/> Date <hr/> Signature <i>(Name / Organization)</i> <hr/> Date
5. Aircraft Movement Requirements, Induction Timelines, SE plans established, Special Inspections, Cannibalization, and Reporting Status Plans Identified and Completed (Action: MMCO)	<hr/> Signature <i>(Name / Organization)</i> <hr/> Date
6. Project Quality Assurance Representative (QAR) and Mod QAR(s) identified, trained and designated in writing (Action: QAO)	<hr/> Signature <i>(Name / Organization)</i> <hr/> Date

VX-30/31 MOD Induction Checklist for Hardware Changes

<p>7. Configuration Tracking Process agreed upon, data tracking location established, and personnel authorized to enter/change tracking data designated in writing and on file within the Mod Coordination Office (Action: Mod Coordinator)</p>	<hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p>
<p>8. Installation Team review of Modified Component Identification Marking Requirements and Expectations regarding items such as, Orange Tape/Paint/Color Schemes, “Approved for Flight Test Use Only” markings, Serial/Part Number expectations and Interim photographic documentation requirements (<i>e.g., before & after digital photographs of bays, components, assemblies and routing/cabling paths</i>) (Action: Mod Coordinator & Mod Installation Team Lead)</p>	<hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p> <hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p>
<p>9. Identification and completion of Pre-Induction Inspections, Equipment Audits, Ground Turns, Weighing Operations, and/or Performance Verification Tests (Action: MMCO & Mod Coordinator)</p>	<hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p> <hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p>
<p>10. Establish partial installation plans that either prevent or allow aircraft movement, jacking and engine ground turns (Action: MMCO & Mod Installation Team Lead)</p>	<hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p> <hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p>

VX-30/31 MOD Induction Checklist for Hardware Changes

<p>11. Ensure funding documents in place and funding lines sufficient to support project completion (Action: Mod Installation Team Lead & VX-30 or VX-31 BFM Lead)</p>	<hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p> <hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p>
<p>12. Approve for Induction (Designated Mod Induction Approval Authority)</p>	<hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p>

VX-30/31 MOD Installation Acceptance Checklist

Action Item:	Certified By:
1. All Intermediate Inspections completed and documented in the Mod Proposal Review (Action: MOD QARs / Project QAR) , including: <i>(Refer to the list of all Mod Specific Inspections Required by the Approved Mod Proposal, Mod Design and Mod Induction Coordination Meetings)</i>	<hr/> Signature <i>(Name / Organization)</i> <hr/> Date
2. Final QA Certification of Project QAR Approval certifying compliance with: <ul style="list-style-type: none"> a. Tool Inventory b. SE, Individual Maintenance Readiness Listing (IMRL), Inventory and Return c. FOD Inspections Completed (Action: Project QAR)	<hr/> Signature <i>(Name / Organization)</i> <hr/> Date
3. All Installation Deviations Documented and Accepted (Action: Mod Coordinator)	<hr/> Signature <i>(Name / Organization)</i> <hr/> Date
4. Weight and Balance Requirements Complete and Documented to include partial removals and re-install requirements for future employment expectations, store carriage and release computations (Action: Projects Coordinator)	<hr/> Signature <i>(Name / Organization)</i> <hr/> Date
5. Logs / Records / Aircraft Inventory Record (AIR) / Weight and Balance Updated and Complete (Action: MMCO)	<hr/> Signature <i>(Name / Organization)</i> <hr/> Date
6. Post Installation Service/Inspection Requirements Documented and Understood by Maintenance Department <i>(e.g., Periodic Inspections or "Dry Aircraft" requirements affecting Wash Cycles, Ramp/Flight Operations)</i> (Action: Mod Proposal Lead & MMCO)	<hr/> Signature <i>(Name / Organization)</i> <hr/> Date
7. Electrical System Capacity Impacts and Accounting Complete (Action: Project Liaison Office Engineer)	<hr/> Signature <i>(Name / Organization)</i> <hr/> Date

VX-30/31 MOD Installation Acceptance Checklist

<p>8. Data Package Review Complete and Accepted (Action Mod Coordinator)</p>	<hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p>
<p>9. Required Ground Turns, EMI Checks, HERO Checks, HERP Checks, Control Surface Movement Checks (required for any modification of a control surface device, actuator and adjacent skin area change performed within 1 ft of a control surface movement area), and Functional Check Flights (FCFs) satisfactorily completed (Action: MMCO & QAO)</p>	<hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p> <hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p>
<p>10. Configuration Tracking System verified to be an accurate representation of the installation (Action: Mod Coordinator & QAO & Mod Proposal Lead)</p>	<hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p> <hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p> <hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p>
<p>11. All Ordnance/Store Related Checklists verified for accuracy, Mod Instruction Compliance and Approved (Action: Gunner & Cognizant Project Officer)</p>	<hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p> <hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p>

VX-30/31 MOD Installation Acceptance Checklist

<p>12. All remaining Hazards to Personnel resulting from system installation/removal, system operation, or troubleshooting are identified and accepted by Maintenance Department (Action: Platform Coordinator & MMCO)</p>	<hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p> <hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p>
<p>13. Aircraft Discrepancy Books (ADB) placard accepted and installed beneath each A-Sheet for Aircrew Review prior to each man-up with Mod Installed (Action: MMCO & Platform Coordinator)</p>	<hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p> <hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p>
<p>14. Maintenance Instructions / Technical Manuals / Checklists / Maintenance Requirement Cards (MRC) Properly Updated (Action: Mod Proposal Lead & QAO)</p>	<hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p> <hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p>
<p>15. Mod Accepted (Designated Modification Acceptance Authority)</p>	<hr/> <p>Signature (Name / Organization)</p> <hr/> <p>Date</p>

**Modified Weapon/Store/Suspension/Handling Equipment Checklist
Development and Approval Procedure Requirements
INSTRUCTIONS FOR PREPARATION OF DEVELOPMENTAL CHECKLISTS**

1. SCOPE

This enclosure covers the requirements for preparation of checklists for functionally testing various armament systems, for loading/downloading weapons/stores in or on VX-30/31 aircraft, and the requirement for preparation of a weapon/store, within a format that is generic in scope to encompass multiple aircraft types following existing NAVAIR requirements under references (a) and (b).

2. APPLICABLE DOCUMENTS

The following documents form a part of this enclosure to the extent specified herein.

SPECIFICATIONS

Military

MIL-M-38784	Manuals, Technical: General Requirements for Preparation of Manuals, Technical: General Style and Format Requirements
MIL-M-81203	Manuals, Technical: In-Process Review, Validation and Verification Plan
MIL-M-81310C	Manuals, Technical: Airborne Weapons/Stores Loading (Conventional)

PUBLICATIONS

Military

DOD 5220.22-R	Industrial Security Manual for Safeguarding Classified Information (Attachment to DD Form 441)
NAVAIR 00-25-600	Technical Manual In-Process Review, Validation, and Verification Guide

3. REQUIREMENTS

- a. **Preparation.** Unless specified otherwise, the general manner for preparation of the Weapons/Stores checklists shall be in accordance with instructions outlined herein.
 - i. **Format.** Content, except tabular, shall be presented on each page in a head-to-foot (tumble turn) manner with illustrations appearing on backing pages. Tabulated procedures shall be presented across the length of the page and backing pages (left to right) in a book turn (right to left) manner. A check-off space for each procedural step shall be provided in the right margin of each page.
 - ii. The title page will have the checklist number (assigned sequentially by the respective Squadron Mod Coordinator), weapon/store designation, the aircraft model, the checklist title in a vertical arrangement and on applicable illustration followed by a signature tree. The publication date and, when applicable, the change number and date will appear in the lower right corner. The change notice and/or superseded information shall be entered when applicable.
 - iii. The "A" page shall contain reproduction information and provisions for entering change information. The aircraft model, DWCRB control number, and title, in that order, shall appear across the top of the page from the left. The lower left corner will be marked "A." The publication date and, when applicable, the change number and date will appear in the lower right corner.

- iv. Each checklist page, except the title page, shall have the aircraft model, DWCRB control number, and checklist title, in that order, across the top of the page from the left. Except for the title page and “A” page, each page shall have the aircraft model and checklist title in the lower left corner. The publication date and, when applicable, the change number and date will appear in the lower right corner of all pages. Page numbering will be as follows:
 - a) Title Page – None
 - b) Change Page – “A”
 - c) Table of Contents, Introduction, Required Reading and Ground Support Equipment - Lowercase Roman numerals.
- v. The content shall be arranged in a tabulated listing of weapon/store checklists for each VX-30/31 aircraft. Aircraft shall be covered in alphanumerical sequence. Issue dates of the basic publications shall be included and change numbers and dates shall be listed, if applicable. Information shall be presented in a continuous manner, commencing on a left hand page.
- vi. Warning, Cautions, and Notes shall precede the text to which they apply. When necessary to proceed information with a note and a warning, or a note and a caution, they shall appear in the sequence as noted. Warnings, cautions, and notes shall not contain procedural information and shall be presented in an established format. The following definitions apply to the Warning, Cautions, and Notes found throughout this instruction:

WARNING

An operating procedure, practice, etc., which, if not correctly followed, could result in personnel injury or loss of life.

CAUTION

An operating procedure, practice, etc., which, if not strictly observed, could result in damage to or destruction of equipment.

NOTE

An operating procedure, condition, etc., which is essential to amplify/highlight.

- vii. Nomenclature. Nomenclature shall be standardized throughout the checklist and in consonance with applicable source data and/or checklist standards.
- viii. Illustrations. Illustrations shall be used as necessary to aid in understanding complex procedures, to present phases which are difficult to describe by text alone, to reduce the amount of text necessary to describe a given procedure, and to highlight details which are significant or related to safety and reliability. Line drawings shall be prepared in accordance with MIL-M- 38784. Only one figure shall appear on a page and when possible shall be placed on the preceding page referencing the figure number. Each illustration shall be referenced in the text.

- ix. A heavy vertical black line, spanning the right hand side of the changed material, shall indicate changes to checklist text.
- x. List of effective pages. The list of effective pages shall not be required unless specified by the procuring or responsible activity. Changes with the applicable change number and date, shall be listed in the "Changes Incorporated" block on the "A" page.
- xi. Security classification. Checklists, which contain classified information, shall be prepared in accordance with Mil-M-28784. The requirements for handling classified material shall be in accordance with DOD Instruction 5220.22.

b. **Coverage.**

Checklists shall be a direct condensation of procedural information contained in source documentation pertaining to release and control, and weapon/store loading. Preparation and inspection shall be limited to visual inspection and procedures normally not performed during aircraft configuration or weapon/store assembly. Downloading procedures will normally include returning the weapon/store to the delivered configuration.

- i. A separate loading checklist shall be provided for each developmental weapon/store. Individual weapon/store of a family may be covered in separate checklists where the weapon/store is not identified by the family name. Where necessary, individual weapons/stores of a family may be covered separately within the checklist.
- ii. Release and Control Systems Tests checklists shall provide operational function tests for armament systems and subsystems. The depth of the functional tests shall be limited to the receipt of a release or control signal from the system being tested. Functional tests shall not include scheduled or unscheduled maintenance procedures such as tolerance adjustments or repairs to the armament system or subsystems. Armament system and subsystem checks shall be in the same checklist when the release system has been modified.
- iii. Section titling, general layout, and arrangement of section pages shall be in accordance with established standards. Section titles shall be consonant with the title page; i.e., when a weapons/stores title page is used, the applicable sections shall be titled, "Weapons/Stores Inspection," "Weapons/Stores Downloading," etc.
- iv. Checklists prepared on aircraft incorporating different models, modifications, variations, effectivity, etc., shall cover all differences that affect procedural information by flagging, or other means to ensure full coverage of all aircraft.
- v. Safety and reliability are of primary importance and shall be stressed in all applicable portions of the checklist.
- vi. Checklist section and subsection headings shall be presented in an established format. Where a particular section, subsection, or paragraph is not applicable, it should be omitted.

c. **Printing and Binding**

- i. Reproduction type size should be 10-point or equivalent IBM Executive, Courier 12, or as specified by the responsible activity. Title and subheading type sizes will be as specified by the responsible activity.

- ii. Paper Stock. Unless otherwise specified in the contract, text and title pages should be on at least 110-pound orange sulphite stock or its equivalent.
- iii. Type Page Area. Maximum width of text and illustrations should be 4 ¼ inches (25 ½ picas) allowing 5/8 inch for binding margin and ¼ inch for bottom margin. Fold-over or fold-out pages shall not be used.
- iv. Binding. Checklist pages shall be collated numerically into complete sets and stitched with one wire staple or have two holes in the binding edge at the top of the page.
- v. Titling/Numbering/Dating. Weapon/Store, Release and Control checklist shall be titled and dated.

d. **Arrangement and Content.**

Checklists shall be arranged sequentially as follows. Subject matter headings shall include, but not be limited to, those listed.

Title Page
“A” Page
Table of Contents
Introduction
Required Reading
Ground Support Equipment / Special Tools / Test Equipment
Verified Weapon/Store Loading
Aircraft Preparation/Inspection
Weapon/Store Inspection
Weapon/Store Loading
Postloading Quality Assurance
Prior to Launch
After Landing or Ground Abort
Weapon/Store Downloading

- i. Title Page. The Title Page shall be in the format of enclosure (9), figures 1 thru 4.
 - Change Notice
 - Mod Proposal Number
 - Developmental Weapons/Stores Checklist
 - Aircraft Model/Bureau Number
 - Publication Title
 - Naval Test Wing Pacific (NTWP) and Squadron Logos
 - Superseded Information
 - “This checklist is to be used on VX-30/31 aircraft for developmental projects and is not authorized for any other aircraft.”
 - Signature Block
 - Publication Date
 - Change Number and Date
- ii. “A” Page. The “A” page shall be in the format of enclosure (9), figure 5.
- iii. Table of Contents. The Table of Contents shall be in the format of enclosure (9), figure 6.

- iv. Introduction. The Introduction shall be in the format of enclosure (9), figure 6. The Introduction shall contain the following information as applicable:
 - 1) Purpose of the checklist.
 - 2) Procedures for submission of comments and recommendations to the cognizant authority.
 - 3) Other clarifying information concerning utilization of the content therein.
- v. Required Reading. The Required Reading shall be in the format of enclosure (9), figures 6 and 7. The Required Reading section shall contain the following information as specified by the responsible activity:
 - 1) A background paragraph clarifying the following:
 - a) How checklists are to be used.
 - b) Step/action performance sequence.
 - c) Omission of checks for specific missions.
 - d) Authority to deviate from the checklist.
 - e) Authority for use of the checklist for evolution not specified therein.
 - 2) A statement that the applicable operating procedures and precautions in the Electromagnetic Radiation Hazards Manual shall be complied with during weapon/store loading/downloading operations. Any Electromagnetic Radiation Hazards shall be specifically stated on the card.
 - 3) A requirement for positioning of fire-fighting personnel and equipment during weapon/ store loading/downloading operations in accordance with current directives.
 - 4) A list of directives associated with the armament system including Airframe Changes, Aviation Armament Changes/Bulletins, Armament Material Changes/Bulletins, Avionics Changes/Bulletins, Accessory Changes/Bulletins, and Support Equipment Changes/Bulletins.
 - 5) Weapon/store loading/downloading information.
 - 6) Applicable restrictions.
 - 7) Other clarifying information as specified by the responsible activity.
- vi. Ground Support Equipment. The Ground Support Equipment section shall be in the format of enclosure (9), figure 8. The Ground Support Equipment section shall list authorized handling and loading equipment, and when applicable, special test equipment and tools.
- vii. Verified Weapon/Store Loading. This checklist does not authorize loading for flight. For specific authorization, refer to the Tactical Manual, NAVAIRSYSCOM flight clearance message or NTWP flight clearance.
- viii. Text Content. Text content will be divided into sections and subsections. No more than one section will appear on a page. Sections shall be titled as follows and shall contain appropriate steps to accomplish the applicable procedures listed for each section/subsection. Procedural information need not be limited to that listed.

NOTE: All sections and paragraphs apply to developmental weapon/store unless specified otherwise.

1) **AIRCRAFT PREPARATION INSPECTION**

NOTE: Aircraft preparation inspection information will be presented under the assumption that the aircraft armament system configuration and associated equipment is ready for the loading evolution to begin.

- a) Verify completion of applicable release and control systems checks/tests.
- b) Armament controls set to the desired position (general reference to switches and positions).
- c) Wiring illustrations of pylon/rack/launcher connections when required for clarification.
- d) Accessory and equipment preparation to achieve weapon/store suspension (e.g., MER/TER/BRU-41/42 sway brace pre-loading adjustment).

2) **WEAPON/STORE INSPECTION**

NOTE: Weapon/store inspection information will be presented under the assumption that the weapon/store is assembled and ready for the loading evolution to begin.

- a) Checks for unarmed condition and damage of weapon/store, installation of safety and protective devices, completeness of assembly, availability of accessories, etc.
- b) Illustrations may be used to highlight specific inspection or safety items.
- c) Applicable weapon/store preparation peculiar to the aircraft (positioning of bomb fins for aircraft clearance, attachment of ballast bands, etc.).

3) **WEAPON/STORE LOADING**

- a) The Weapon/Store Loading sections shall be divided into two subsections titled, "Preparation" and "Loading." The subsections will contain steps to ensure accomplishments of the following as applicable.
 - i) Preparation
 - (1) Completion of Weapon/Store Inspection and Aircraft Preparation and Inspection.
 - (2) Ground aircraft according to applicable Loading Manual.
 - (3) Armament controls set to the desired position (reference specific switches and positions).
 - (4) Single and multiple loading information.
 - ii) Loading
 - (1) Lifting, attachment, and alignment of the weapon/store.

- (2) Fuze and arming wire installation, CF cable, and umbilical connections. (Illustrations will be used to show specific arming/release wire routing, cable bail hookup, etc., if required for clarification.)
- (3) Cartridge installation.
- (4) Required function checks (i.e. launcher continuity, WALLEYE preflight test, etc.).
- (5) Removal of specific ordnance related safety devices (fuze safety pins, etc.).

4) **POSTLOADING QUALITY ASSURANCE**

NOTE: This section is to be used to check those procedures performed by the loading crew during the weapon/store loading evolution section.

- a) Armament controls set to the desired position (general reference to switches and positions).
- b) Presence of safety devices.
- c) Presence of seal wires/seals on controls as applicable.
- d) Weapon or store suspension properly accomplished (e.g., sway braces adjusted, ejector foot positioned, etc.).
- e) Cartridge(s) installed as required.
- f) Weapon, aircraft, electrical and mechanical connections mated (e.g., CF cable bails, wire rope assemblies, etc.).
- g) (BIT) "Power-on" checks of weapon/store as required.
- h) Weapon/store safety condition checks.

5) **PRIOR TO LAUNCH**

- a) The Prior to Launch section will be divided into three subsections titled "Rearming Area (Before Engine Turnup)," "Rearming Area or Arming Area (After Engine Turnup)," and "Arming Area." The subsections will contain steps to accomplish the following as applicable:
 - i) Rearming Area (Before Engine Turnup)
 - (1) Removal of weapon/store safety devices.
 - (2) Removal of weapon/store protective covers.
 - (3) Cartridge installation or connection of cartridge firing actuator, as applicable, to system peculiarity.
 - (4) Installation of weapon/store components.
 - ii) Rearming or Arming Area (After Engine Turnup)
 - (1) Perform stray voltage checks.

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- (2) Removal of specific ordnance related safety devices (e.g., bomb rack safety pins, etc.) as required.

iii) Arming Area

- (1) Umbilical connections (e.g., rocket launcher adapter cables, etc.).
- (2) Removal of specific ordnance related safety devices (e.g., bomb rack safety pins, etc.) as required.

6) **AFTER LANDING OR GROUND ABORT**

- a) The After Landing or Ground Abort section will normally be divided into two subsections titled “Safing (Dearming or Rearming Area Immediately After Engine Shutdown)” and “Turn-around (Rearming or Arming Area).” When forward firing ordnance is involved and/or when required by the responsible activity an additional subsection under safing titled “Safing (Dearming Area Before Engine Shutdown)” will be used. Requirements for emergency dearming procedural information and/or reference to proper authority will be specified by the responsible activity. The subsections will contain steps to accomplish the following as applicable:

- i) Safing (Dearming or Rearming Area Before and/or Immediately After Engine Shutdown) as applicable.

NOTE: Unless specified otherwise, only minimal essential dearming or safing procedures will be given.

- (1) Weapon/store dearming and weapon and aircraft safety: Aircraft and weapon/store made safe for aircraft ground handling procedures.
- (2) Removal of loose or used umbilicals, lanyards, arming wires, etc., that present a Foreign Object Damage hazard.
- (3) Armament controls set to the desired position (general reference to switches and positions).

- ii) Turnaround (Rearming or Arming Area)

NOTE: Only standard or normal dearming or safing procedures will be given. If emergency dearming procedures are required to dearm or safe a weapon/store, notification of proper authority will be specified.

- (1) Turnaround procedures not requiring configuration shall be used.
- (2) Dearming or safing procedures required to return the weapon/store and aircraft to the postload condition.

- (3) Applicable weapon/store inspection checks may be entered for loaded stations. Postload and subsequent checks shall be referenced.
- (4) Adequate preparation of downloaded stations for loading shall be made.
- (5) Stations to be loaded will be referenced to Weapon/Store Inspection through Postload procedures.
- (6) Prior to Launch procedures will be referenced.

7) **WEAPON/STORE DOWNLOADING**

- b) The Weapon Downloading section will be divided into two subsections titled "Preparation" and "Downloading." Subsections will contain steps to accomplish the following as applicable:
 - i) Preparation
 - (1) Ground aircraft according to applicable MIMS.
 - (2) Armament controls set to the desired position (reference specific switches and positions).
 - (3) Checks for unarmed condition of weapon/store, installation of safety and protective devices.
 - (4) Fuze removal, disconnection of all mechanical and electrical connections between weapon/store and the aircraft.
 - 2. Downloading
 - (1) Lifting, removal, and lowering of weapon/store (both single and multiple weapons/stores).
 - (2) Other procedures required on the aircraft and weapon/store after downloading.

e. **Release and Control Checklists**

- i. Release and Control Tests shall cover the operational function checks for the armament systems and subsystems. Separate subsystem checklists shall be required when aircraft weapon system wiring has been modified. Basic and subsystem checklist will be grouped into a basic checklist and the word "BASIC" will appear below the title of the checklist on the title page only.

The subsystem checklists will have the weapon system designator (e.g., Missiles) appear in place of "BASIC."
- ii. **Text Content**

Weapon/Store Release and Control checklist and Release System Tests shall be divided into section and subsections. Sections shall be arranged as follows and shall contain appropriate information to accomplish the applicable procedures

listed for each section/subsection. Procedural information need not be limited to that listed.

- 1) **AIRCRAFT RELEASE AND CONTROL PREPARATION**
Preparation of the aircraft for the required checks.
- 2) **INDIVIDUAL SUBSECTION CHECKS**
 - a) Verifying completion of Aircraft Preparation.
 - b) Required checks for each system/subsystem (e.g., Weapon Release System, Jettison System, MER/TER Release System, etc.).
 - c) Requirement to perform Postcheck Procedures at the completion of all subsystem checks/tests.
 - d) Wiring illustrations or schematics will be used when required for clarity.
- 3) **POSTCHECK PROCEDURES**
Procedures to verify that the aircraft is returned to a safe condition.

4. **QUALITY ASSURANCE PROVISIONS**

The Quality Assurance Provisions shall be similar to the requirements of MIL-M-38784. Unless otherwise specified, draft copies of preliminary checklists shall be required for verification. In-process reviews may be requested by the responsible activity. Validation and verification shall be accomplished in accordance with MIL-M-81203B and NA 00-25-600.

5. **PREPARATION FOR DELIVERY**

Preparation for delivery shall be in accordance with the requirements of MIL-M-38784 unless specified otherwise.

Layout of Title Page (Typical)

<p>DWCRB NO. XXXXX</p> <p>Developmental Weapon/Store</p> <p>LOADING CHECKLIST</p> <p>(AIRCRAFT TYPE)</p> <p>(STORE)</p> <p>THIS PUBLICATION SUPERSEDES ACCB/NO 87-PLXXX DTD 1 APR 1982 AND ALL CHANGES THERETO</p> <p>This checklist is to be used on VX-30/31 aircraft for developmental projects and is not authorized for any other aircraft.</p> <p>NOT FOR FLEET USE</p> <p>Originator: _____ Signature / Date</p> <p>Reviewed By: _____ Project Officer / Date</p> <p>_____ Mod Coordinator / Date</p> <p>_____ Squadron Gunner / Date</p> <p>_____ Safety Officer / Date</p> <p>Approved By: _____ Chief Test Pilot / Date</p> <p>(DATE)</p>	
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Figure 1. Sample Title Page
(Note: printed on orange card stock)

Layout of Title Page (Typical)

<p>DWCRB NO. XXXXX</p> <p>Developmental Weapon/Store</p> <p>LOADING CHECKLIST</p> <p>(AIRCRAFT TYPE)</p> <p>(STORE)</p>	
<p>This checklist is to be used on VX-30/31 aircraft for developmental projects and is not authorized for any other aircraft.</p>	
<p>NOT FOR FLEET USE</p>	
Originator:	_____ Signature / Date
Reviewed By:	_____ Project Officer / Date
	_____ Mod Coordinator / Date
	_____ Squadron Gunner / Date
	_____ Safety Officer / Date
Approved By:	_____ Chief Test Pilot / Date
	(DATE)
	Chg 1 (DATE)

Figure 2. Second Sample Title Page
(Note: printed on orange card stock)

Layout of Title Page (Typical)

DWCRB NO. XXXXX
Developmental
RELEASE & CONTROL CHECKLIST
(AIRCRAFT TYPE)
(STORE)

This checklist is to be used on VX-30/31 aircraft for developmental projects and is not authorized for any other aircraft.

NOT FOR FLEET USE

Originator: _____
Signature / Date

Reviewed By: _____
Project Officer / Date

Mod Coordinator / Date

Squadron Gunner / Date

Safety Officer / Date

Approved By: _____
Chief Test Pilot / Date

(DATE)

Figure 3. Third Sample Title Page
(Note: printed on orange card stock)

Layout of Title Page (Typical)

Developmental Weapon/Store
RELEASE & CONTROL CHECKLIST
(AIRCRAFT TYPE)
(STORE)

This checklist is to be used on VX-30/31 aircraft for developmental projects and is not authorized for any other aircraft.

NOT FOR FLEET USE

Originator: _____
Signature / Date

Reviewed By: _____
Project Officer / Date

Mod Coordinator / Date

Squadron Gunner / Date

Safety Officer / Date

Approved By: _____
Chief Test Pilot / Date

(DATE)
Chg 1 (DATE)

Figure 4. Fourth Sample Title Page
(Note: printed on orange card stock)

Layout of "A" Page (Typical)

(AIRCRAFT TYPE)	DWCRB NO. XXXXX	(STORE)
Reproduction for nonmilitary use of the information or illustrations Contained in this publication is not permitted without specific Approval Developmental Weapons Checklist Review Board (DWCRB).		
CHANGES INCORPORATED		
This checklist consists of the Title, A, and (XX) numbered pages.		
PAGE NO.	DATE	CHANGE NO.
(Page Number)	(Date)	(Change Number)
(Page Number)	(Date)	(Change Number)
(Page Number)	(Date)	(Change Number)
(Page Number)	(Date)	(Change Number)
(Page Number)	(Date)	(Change Number)
(Page Number)	(Date)	(Change Number)
(Page Number)	(Date)	(Change Number)
		(Original Date) Chg 1 (Change Date)
A		

Figure 5. Sample A Page
(Note: printed on orange card stock)

Layout for I Page (Typical)

(AIRCRAFT TYPE)	DWCRB NO. XXXXX	(STORE)
TABLE OF CONTENTS		
<u>TITLE</u>	<u>PAGE</u>	
Changes Incorporated	A	
Table of Contents	I	
Introduction	I	
Required Reading	I	
Ground Support Equipment	ii	
Test Equipment/Special Tools	ii	
Aircraft Preparation/Inspection.....	1	
Weapon/Store Inspection.....	2	
Weapon/Store Loading	3	
Postloading Quality Assurance	4	
Prior to Launch.....	5	
After Landing or Ground Abort	6	
Weapon Unloading	7	
INTRODUCTION		
<p>This checklist contains abbreviated procedures to load and download the (Store) on the (Aircraft Type).</p> <p>The Aircraft Preparation/Inspection section is presented under the assumption that the aircraft armament system configuration and associated equipment are ready for the loading evolution to begin.</p> <p>The (Store) Inspection section is presented under the assumption that the (Store) is ready for loading when received by the loading crew.</p> <p>Comments and recommendations concerning this checklist should be forwarded to the DWCRB</p>		
REQUIRED READING		
<p>This checklist is continuously monitored and updated, as necessary, To provide the latest available verified data and operating instructions for most circumstances; however, no publication is a substitute for sound judgment and effective supervision. This checklist must be used with knowledge and understanding by qualified personnel.</p> <p>Deviation from the checklist may be authorized by the DWCRB by means of a locally prepared Rapid Action Change (RAC) when necessary and required, provided the deviation authorized does not detract from or interfere with safety and/or reliability. Loading crew members may perform several steps simultaneously, provided they do not invalidate or interfere with preceding or subsequent steps and safety precautions are strictly observed.</p>		
(AIRCRAFT TYPE)	(DATE)	(STORE)
I		

Figure 6. Sample Table of Contents Page
(Note: printed on orange card stock)

Layout for I Page (Typical)

(AIRCRAFT TYPE)	DWCRB NO. XXXXX	(STORE)
<hr/>		
REQUIRED READING (Continued)		
<hr/>		
<p>Loading personnel must be certified in accordance with applicable instructions.</p>		
<p>Checks may be performed with airborne weapons/stores (fuel tanks, refueling store, starter pool, camera pod, ECM pod, empty MERs/TERs, etc.) installed on the aircraft stations, provided breech caps are disconnected, cartridges are removed, and safety pins are installed. Appropriate release and control check sections required for loading should be performed prior to loading. Any time a malfunction occurs, stop the check and report the discrepancy to the proper authority. After the malfunction has been corrected, the check must be repeated in its entirety.</p>		
<p>This checklist does not authorize loading for flight. For specific flight authorization, refer to the Tactical Manual, NAVAIRSYSCOM flight clearance message or VX-30/31 flight clearance. This procedure in this checklist has been approved for the following weapons:</p>		
<p>(STORE)</p>		
TECHNICAL DIRECTIVES:		
<p>1. NONE</p>		
RESTRICTION:		
<p>1. Release and control checks will NOT be performed with weapons loaded on the aircraft</p>		
(AIRCRAFT TYPE)	(DATE)	(STORE)

Figure 7. Sample I Page Continued
(Note: printed on orange card stock)

Layout for "ii" Page (Typical)

(AIRCRAFT TYPE)	DWCRB NO. XXXXX	(STORE)
GROUND SUPPORT EQUIPMENT		
1.	()	
2.	()	
3.	()	
4.	()	
5.	()	
TEST EQUIPMENT/SPECIAL TOOLS		
1.	()	
2.	()	
3.	()	
4.	()	
5.	()	
(AIRCRAFT TYPE)	(DATE)	(STORE)
ii		

Figure 8. Sample ii Page
(Note: printed on orange card stock)

Software Configuration Changes

1. Platform coordinators shall ensure that necessary lab and ground testing has occurred with no anomalies noted that could pose a safety-of-flight risk, and that the testing is properly documented, and that the documentation is archived per the project or IPT established processes.
2. Testing documentation must be complete, accurate, and accessible.
3. Documentation of test results shall include, at a minimum:
 - a. A summary description of the lab and ground test procedures that were executed;
 - b. A summary of the results of the testing, noting any new discrepancies that may be evident in flight;
 - c. A list of known problems, if the problems are expected to be evident in flight;
 - d. Notification and results of any other testing of the software product(s) that may have been executed by an outside source, i.e., the prime contractor;
 - e. A testament to the maturity of the product that will support a flight clearance request.
4. Test documentation may be used as a flight clearance request in accordance with applicable NTWP FCCO, VX-31 FCCO, or AIR 4.0P guidelines.
5. Software may be loaded in a test platform in accordance with maintenance procedures when the platform coordinator is satisfied that sufficient lab testing has been successfully accomplished, and that the risk to the aircraft, stores, and personnel of applying external or internal power to the aircraft is minimal.
6. Platform coordinators, aircraft schedulers, or IPT software Task Team Leads shall pass software installation approval to the squadron maintenance department Project Coordinator by submitting a Fly-Me form noting the desired software configuration(s) and whether the aircraft will be used for ground or flight test. Prior to the squadron Operations Office scheduling the aircraft for flight test in the new configuration the Project Coordinator shall also be in possession of a valid AIR 4.0P flight clearance for the desired configuration.
7. The configuration change shall be documented by the generation of a MAF prior to the actual loading of the software or replacement of avionics.
8. Platform coordinators shall ensure that ground personnel are thoroughly briefed of any known hazard that may be caused by the loading of the software and/or the application of electrical power to the aircraft, and the precautions necessary to avoid such hazards. Types of hazards include electromagnetic radiation; excessively hot aircraft parts, electric shock, etc.
9. A flight clearance for any software configuration change shall be issued prior to flight, as defined in the most current version of NAVAIRINST 13034.1, FLIGHT CLEARANCE POLICY FOR MANNED OR UNMANNED VEHICLES.

Placard Form

A/C MODEX

Aircraft Limitations

MOD Name

Short Description of MOD